

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF NEW YORK

PASS & SEYMOUR, INC.,

Plaintiff,

v.

Civil Action No.
5:07-CV-00945 (NAM/DEP)

HUBBELL INCORPORATED,

Defendant.

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DAVID E. PEEBLES
U.S. MAGISTRATE JUDGE

REPORT AND RECOMMENDATION

Plaintiff Pass & Seymour, Inc. ("P&S"), a Syracuse, New York based manufacturer of electrical wiring devices, has commenced this patent infringement suit against defendant Hubbell, Incorporated ("Hubbell"), a competitor headquartered in Connecticut. At issue in the action are ten patents, all of which relate to the technology associated with ground fault circuit interrupters ("GFCIs") designed to detect and cut off power to electrical outlets in the event of a ground fault, in that way avoiding the potential for injury or death by electrocution.

The parties have applied to the court for clarification of certain disputed claim terms appearing within the ten patents in suit. In light of that request the matter has been referred to me by Chief Judge Norman A. Mordue, the assigned district judge, for the issuance of a report and recommendation to him regarding claim construction. The following constitutes my reported findings and recommendations, based upon comprehensive submissions from the parties and a claim construction hearing conducted beginning on June 3, 2009.

I. BACKGROUND

The patents at issue in this action all relate to GFCIs. Governing industry standards, as paraphrased by P&S expert, Dr. Thomas Harman, in a tutorial to this court and also apparently to the administrative law judge in the administrative proceeding, define a GFCI as

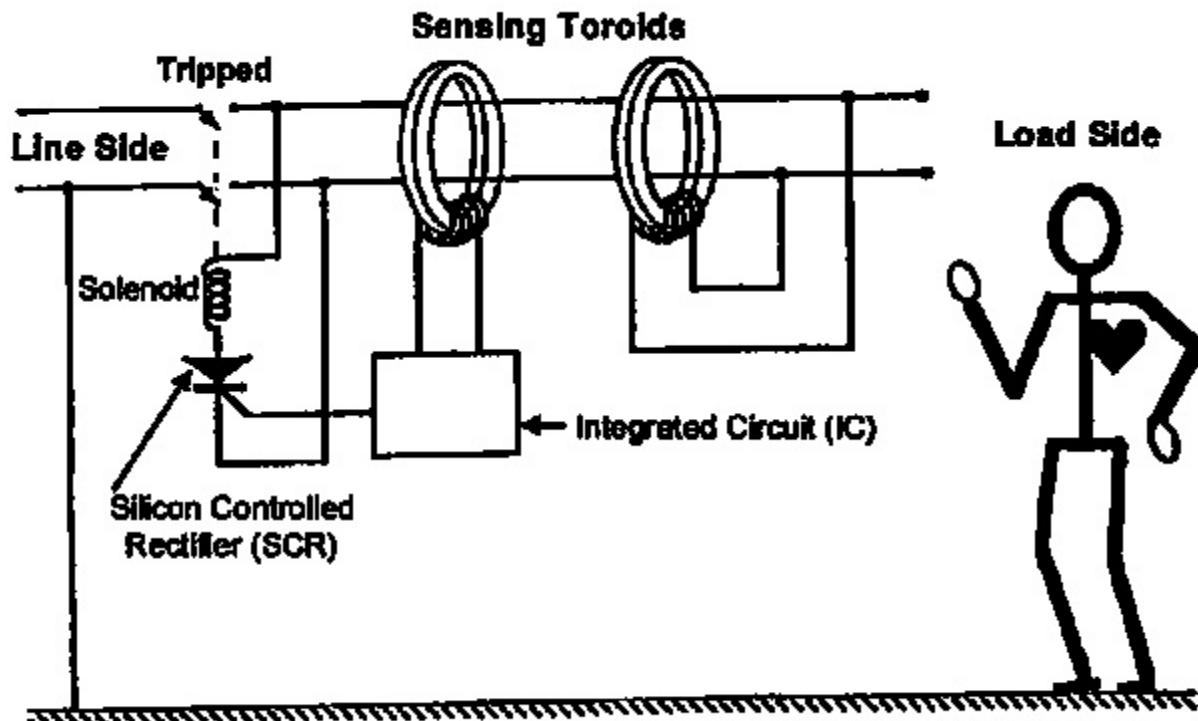
[a] device intended for the protection of personnel that functions to de-energize a circuit or portion of a circuit within an established period of time when a current to ground exceeds some predetermined value that is less than that required to operate the over current protective device of the supply circuit.

See Underwriters Laboratories (“UL”) Standard 943; see also Nocilly Decl. (Dkt. No. 41-2) Exh. W at p. 8. The first GFCIs were developed in the 1960s, and were comprised of large devices weighing up to seven or eight pounds. *Id.* Exh. Z-1 at pp. 285-87. In the late 1969 or early 1970s time frame, P&S began work toward the development of a much smaller GFCI receptacle. *Id.* at 292-93.

In simple terms, GFCI receptacles serve to detect situations in which current drawn by a device from the GFCI may be passing through an individual and to ground, including for example to a plumbing fixture or body of water, and upon detecting such a circumstance to stop the flow of electricity quickly in order to avoid subjecting the individual to electrical

shock and the possibility of electrocution. A GFCI receptacle can be used both to provide fault protection to utilities plugged into its face, and additionally can provide protection to downstream, non-GFCI outlets.

The technology through which the GFCI performs its desired function typically employs sensing toroids, occasionally referred to as transformers or coils, to detect current imbalances caused by ground faults. When a current differential occurs a magnetic flux is induced in the toroids, which in turn results in a flow of electrical current to the gate of a silicon controlled rectifier ("SCR"). In that event the SCR functions as a switch, mechanically breaking contacts, typically within a fraction of a second, opening connections on the line side of the device and prohibiting current from flowing through to the load side, where the electrical utility in use is connected. The following represents a simplified illustration of a GFCI device, shown in a "tripped" state, where the flow of current from line side to load side has been interrupted based upon the detection of a fault:



The ten patents in suit loosely correspond to development by P&S of four GFCI product lines. The first of those, the G3, was developed in the early 1990s to meet an increased demand for GFCI products. Among the factors leading to development of the G3 series was a desire to facilitate automated assembly of GFCI receptacles in order to meet the increase in demand for such devices.

The invention disclosed in United States Patent No. 5,594,398 (the "398 patent"), issued on January 14, 1997, represents an outgrowth of the G3 receptacle development. In the device disclosed in the '398 patent,

the conventional two sets of contacts – one each for the hot and neutral conductive paths – within the device intended to interrupt current flow in the event of a fault were replaced by two sets of contacts for each internal conductive path. Among the reasons offered by P&S for the enhanced number of contacts was to allow for automated assembly through use of a “pick and place” machine. See Nocilly Decl. (Dkt. No. 41-2) Exh. Z-1 at pp. 377, 421-22, 424-27.

Prompted by consumer demand as well as increased regulation, including new UL standards addressing such issues as miswiring – a phenomenon that occurs when the device is wired backwards, with the live current line in attached to receptacles designated for the load current out and, conversely, the load lines being attached to receptacles designed to accommodate the current line in – P&S undertook efforts in the late 1990s to develop its next generation of GFCI, the G4 series. With development of that series came five of the patents in suit, including U.S. Patent No. 7,283,340 (the “340 patent), issued on October 16, 2007;¹ U.S. Patent No. 7,212,386 (the “386 patent”), issued on May 1, 2007; U.S. Patent No. 7,164,564 (the “564 patent”), issued on January 16,

¹ These and others of the patents in suit will be described in more detail in portions of this report addressing construction of their respective claim terms.

2007; U.S. Patent No. 7,256,793 (the “793 patent”), issued on August 14, 2007; and U.S. Patent No. 7,375,938 (“938 patent”), issued on May 20, 2008, all of which implicate the issue of miswiring. The first of those, the '340 and '386 patents, disclose inventions designed not only to detect faults but also to include a wiring state detection circuit revealing when the device is properly wired. The '564 patent represents an improved design capable of accommodating various detection possibilities and providing for user indication of internal functioning, and specifically to provide an indication to be used based on a parameter of the switch that sends the trip signal to the solenoid within the GFCI. The '973 and '938 patents address a means of post-manufacturing testing without compromising the circuit for detecting proper wiring, adding a switch maintained in the open position during testing and providing a method for closing of the switch, through application of an external stimulus, without having to open or otherwise comprise the housing.

In or about 2003, P&S began development of the G5 generation of GFCIs. That iteration, incorporating technology disclosed in U.S. Patent No. 7,154,718 (the “718 patent”), issued on December 26, 2006, and U.S. Patent No. 7,173,799 (the “799 patent”), issued on February 6, 2007 (the

“799 patent”), essentially utilizes a design which includes two movable cantilevers, each having at least one contact, with each conductor configured in a “stacked” or “sandwiched” mating relationship, in order to provide for more efficient utilization of space within the device.

More recently, in part prompted by anticipated UL modifications addressing this issue, P&S began development of a G6 GFCI series, aimed at providing a self-testing feature. Certain of the inventive technology developed for use in the G6 series is the subject of U.S. Patent No. 6,873,158 (the “158 patent”), issued on May 29, 2005, and U.S. Patent No. 6,980,005 (the “005 patent”), issued on December 27, 2005. Both of those patents disclose circuitry designed to perform self-testing and trigger the interruption feature of the GFCI in order to prevent flow of current to the outlet when improper functioning of the GFCI is detected during the self-testing process.

Defendant Hubbell, a company which traces its roots to the invention by Harvey Hubbell of the removable electric plug and corresponding receptacle, is engaged in the manufacture of a broad range of products that include GFCI devices, a line which it has marketed dating back to at least 1979. While at this juncture the number and identity of

Hubbell accused products is unknown, P&S contends that many of the GFCI devices marketed by Hubbell infringe one or more designated claims within the ten patents in suit.²

II. DISCUSSION

A. Claim Construction

As a precursor to adjudication of the various infringement claims and defenses raised in this action, the parties have sought the court's guidance in defining certain disputed terms contained within the claims of the ten patents in suit. Patent claim construction implicates an issue of law, to be decided by the court. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384 (1996); *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1304

² P&S currently asserts infringement by Hubbell of the following claims:

<u>Patent</u>	<u>Asserted Claims</u>
'398 Patent	1, 2 and 5-7
'340 Patent	14, 18, 19, 21 and 24.
'386 Patent	1
'564 Patent	1, 2, 4 and 14
'973 Patent	1, 4, 6 and 7
'938 Patent	1, 3 and 5
'718 Patent	52, 59, 61 and 63
'799 Patent	1-5
'158 Patent	1, 8, 9, 22 and 23
'005 Patent	1, 17 and 22

(Fed. Cir. 1999) (citing *Markman*). When engaged in patent construction, a court must define claim terms as one of ordinary skill in the relevant art would understand and interpret them in the context of the entire patent, including the specification. *Markman*, 52 F.3d at 986; see also *Netcraft Corp. v. eBay, Inc.*, 549 F.3d 1394, 1396-97 (Fed. Cir. 2008); *K-2 Corp. v. Salomon S.A.*, 191 F.3d 1356, 1365 (Fed. Cir. 1999).

1. General Claim Construction Principles

Perhaps the most comprehensive discourse to date regarding the claim construction calculus is found in the Federal Circuit's *en banc* decision in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005), *cert. denied*, 546 U.S. 1170, 126 S.Ct. 1332 (2006). In *Phillips*, though with extensive illuminating discussion regarding the relative importance of intrinsic and extrinsic evidence, the Federal Circuit in essence endorsed its earlier decision in *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576 (Fed. Cir. 1996), previously regarded by the courts and patent practitioners as defining the contours of the claim construction inquiry. *Phillips*, 415 F.3d at 1324.

The principal teaching of *Phillips* – and not a significant departure from earlier claim construction jurisprudence – is that the claims of a

patent define the scope of protection afforded to the inventor. *Phillips*, 415 F.3d at 1312. It therefore follows that the language of a claim itself generally provides the most definitive source of enlightenment concerning the intended meaning of disputed terms. *Vitronics*, 90 F.3d at 1582. Words contained within a patent normally should be given their ordinary and customary meaning, considered from the perspective of a person of ordinary skill in the art in question at the time of the invention – that is, the effective filing date of the patent application. *Phillips*, 415 F.3d at 1313 (citing, *inter alia*, *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)).

While it is true that the words of a patent claim will generally control, they should not be interpreted in isolation, in disregard of other portions of the patent; instead “the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Phillips*, 415 F.3d at 1313. In this regard a patent specification, which some liken to an internal dictionary, must be carefully reviewed to determine whether, for example, the inventor has used a particular term in a manner inconsistent with its ordinary meaning.

Id. at 1313-14; see also *Vitronics*, 90 F.3d at 1582 (citing *Markman*, 52 F.3d at 979).

A patent's specification often constitutes the "single best guide to the meaning of a disputed term." *Vitronics*, 90 F.3d at 1582. When resorting to a patent's specification for guidance with respect to disputed claim terms one must consider it as a whole, and all portions should be read in a manner that renders the patent internally consistent. *Budde v. Harley-Davidson, Inc.*, 250 F.3d 1369, 1379-80 (Fed. Cir. 2001). "[W]hile it is true that claims are to be interpreted *in light of* the specification and with a view to ascertaining the invention, it does not follow that limitations from the specification may be read into the claims[.]" *Sjolund v. Musland*, 847 F.2d 1573, 1581 (Fed. Cir. 1988) (emphasis in original), "[n]or should particular embodiments in the specification be read into the claims; the general rule is that the claims of a patent are not limited to the preferred embodiment." *Cornell Univ. v. Hewlett-Packard Co.*, 313 F. Supp. 2d 114, 126 (N.D.N.Y. 2004) (Mordue, C.J.) (citing, *inter alia*, *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1204 (Fed. Cir. 2002)).

In addition to the claim terms themselves and the patent's specification, a third category of relevant intrinsic evidence worthy of

consideration is the history surrounding prosecution of the patent. That history, which is customarily though not always offered to assist a court in fulfilling its claim construction responsibilities, is generally comprised of the complete record of proceedings before the United States Patent and Trademark Office (“PTO”) including, significantly, any express representations made by the applicant regarding the intended scope of the claims being made, and an examination of the prior art. *Vitronics*, 90 F.3d at 1582-83. Such evidence, which typically chronicles the dialogue between the inventor and the PTO leading up to the issuance of a patent and thus can act as a reliable indicator of any limitations or concessions on the part of the applicant, often proves highly instructive on the issue of claim construction. *Philips*, 415 F.3d at 1313 (“We cannot look at the ordinary meaning of the term . . . in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history.”) (quoting *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005)).

Courts supplied with prosecution history strive to avoid definitions upon which the PTO could not reasonably have settled in order to ensure against the possibility of an applicant obtaining a range of protection which

encompasses subject matter that, through the conscious efforts of the applicant, the PTO did not examine. *Genentech, Inc. v. Wellcome Found. Ltd.*, 29 F.3d 1555, 1564 (Fed. Cir. 1994). Similarly, representations made in an attempt to overcome objections by the patent examiner can prove informative in construing claims and precluding inventors from later attempting to broaden the dimensions of their claimed invention beyond the scope of the claims presented before the PTO. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722, 733-34, 122 S.Ct. 1831, 1838-39 (2002); *see also Vitronics*, 90 F.3d at 1583. As the Federal Circuit has cautioned, however, “because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Phillips*, 415 F.3d at 1317; *see also Netcraft Corp.*, 549 F.3d at 1401.

If analysis of the available intrinsic evidence resolves a perceived ambiguity in a disputed claim term, then the inquiry is ended. *Vitronics*, 90 F.3d at 1583. Where, on the other hand, there remains uncertainty regarding a claim after consideration of all intrinsic evidence, the court must next turn to examination of such available extrinsic sources as

expert testimony, inventor testimony, dictionaries, and technical treatises and articles, for guidance in reconciling any conflicting intrinsic indicators. *Id.* at 1584. It should be noted, however, that extrinsic evidence may only be used to aid the court in understanding patent claims, and cannot be relied upon to justify any departure from or contradiction of the actual claim language employed by the applicant. *Id.* To assist in resolving an ambiguity, in its discretion, a court may admit and rely on prior art, whether or not it is cited in the specification or file history. *Id.* at 1584-85. Prior art and dictionaries, as publicly accessible, objective information, are for obvious reasons preferable to expert testimony as tools for resolving ambiguity. *Id.* at 1585; see also *Texas Digital Sys.*, 308 F.3d at 1202-03.

Ultimately, interpretation of the terms of a patent claim can only be determined with a full understanding of what the inventor actually invented and intended to encompass within the scope of his or her patent claims. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). For this reason, when inventors distinguish their invention from prior art, that prior art is properly excluded from coverage of the patent's claims. *Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 267 F. Supp. 2d 533, 543 (N.D. W.Va. 2003) (citing *SciMed Life Sys., Inc. v.*

Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1343 (Fed. Cir. 2001)).

2. Degree of Deference Owed to Prior Administrative Interpretations

In its presentation to the court, P&S has placed heavy reliance upon prior decisions construing many of the same claim terms now in issue, rendered in the context of a proceeding before the United States International Trade Commission (“ITC”). That administrative proceeding resulted from a complaint lodged with the ITC in August of 2007 by P&S against various companies alleging their importation into the United States of products which infringe certain of its patents, in violation of section 337 of the Tariff Act of 1930, 19 U.S.C. § 1337.³

An evidentiary hearing was held in connection P&S’s complaint to the ITC before Administrative Law Judge (“ALJ”) Carl C. Charneski, beginning on June 2, 2008. See Nocilly Decl. (Dkt. No. 41-2) Exh. Z. During that hearing the testimony of various witnesses, including seven experts, was presented by the parties. *Id.* Following the hearing ALJ Charneski issued a comprehensive opinion, designated as an initial determination, dated September 24, 2008. *Id.* Exh. W. That initial

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Hubbell was not among the companies named in that complaint.

determination was reviewed by the full Commission, which issued a final determination on March 26, 2009. *Id.* Exh. X. Significantly, in its final determination the Commission accepted many of the findings of ALJ Charneski concerning claim construction, while modifying certain others. Before proceeding with claim construction, I must first determine what legal significance, if any, to attach to the findings made by ALJ Charneski and the ITC. As a subsidiary matter the court must also determine whether testimony offered in the context of the ITC administrative proceeding is properly considered by the court in this case.

The principle of *res judicata* generally precludes parties who have been afforded a full and fair opportunity to litigate a claim or issue in an appropriate forum from relitigating the matter. *New Hampshire v. Maine*, 532 U.S 742, 748, 121 S. Ct. 1808 (2001). This general principle, however, has no applicability in this case. Whether the ITC decision is offered under the more narrow doctrine of issue preclusion, or instead more broadly as providing a basis for claim preclusion, since Hubbell was not a party to that proceeding, absent the existence of one of six recognized exceptions not applicable in this case, the agency's final determination is not binding in this action. *Taylor v. Sturgeil*, ____ U.S.

____, 128 S.Ct. 2161, 2171 (2008).

Even had Hubbell been a party to the ITC proceeding, it is not at all clear that it would be bound by the agency's claim construction. The Federal Circuit has analyzed the question of whether ITC decisions implicating patent matters should be given preclusive effect in a judicial proceeding. Generally speaking, when an administrative agency acts in a judicial capacity, its decisions may be accorded preclusive effect by a federal court. *Texas Instruments, Inc. v. Cypress Semiconductor Corp.*, 90 F.3d 1558, 1568 (Fed. Cir. 1996), *cert. denied*, 520 U.S. 1228, 117 S. Ct. 1818 (1997) (citing *Univ. of Tennessee v. Elliott*, 478 U.S. 788, 797-98, 106 S.Ct. 3220, 3225-26 (1986)). After considering the legislative history surrounding the Trade Reform Act of 1974, the Federal Circuit found in *Texas Instruments* that "decisions of the ITC involving patent issues have no preclusive effect" in other forums. *Texas Instruments*, 90 F.3d at 1569. Accordingly, "ITC decisions are not binding on district courts in subsequent cases brought before them[,] and "the district court can attribute whatever persuasive value to the prior ITC decision that it considers justified." *Id.*

While not binding on the court, one could argue that the decision of

the ITC should be accorded precedential value as representing a quasi judicial determination of the same issues now before this court. This court has previously acknowledged the importance of *stare decisis*, particularly in the patent arena. *Sears Petroleum & Trans. Co. v. Archer Daniels Midland Co.*, No. 5:03-CV-1120 (DEP), 2007 WL 2156251, at *8 (N.D.N.Y. July 24, 2007). When claim constructions arising out of litigation in which an accused infringer was not involved are urged by a patentee, however, the doctrine of *stare decisis* is brought squarely into conflict with notions of due process, “the hallowed ideal . . . around which our [judicial] system revolves.” *Texas Instruments, Inc. v. Linear Technologies Corp.*, 182 F. Supp.2d 580, 589 (E.D. Tex. 2002). As the court noted in *Texas Instruments, Inc. v. Linear Technologies Corp.*, resort to *stare decisis* in order to adopt claims construed without a defendant’s participation “could cause an injustice of precisely the sort that due process seeks to avoid.” *Id.* at 589-90.

In this instance Hubbell was not a party to the ITC proceeding, nor does that agency possess any recognized special expertise that would warrant special deference to its claim constructions in this patent infringement suit. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1255-56

(Fed. Cir. 2008). Accordingly, while I have carefully reviewed the decisions of ALJ Charneski and the ITC and agree with many of their findings, I have not accorded them any special weight in making my claim construction recommendations.

Turning to the question of expert testimony given in the ITC proceeding, I begin with the teachings of *Phillips*, in which the Federal Circuit approved of the limited use of extrinsic evidence, including expert testimony, to the extent it “can shed useful light on the relevant art.” *Phillips*, 415 F.3d at 13, 18 (quoting *C.F. Bard, Inc. v U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004)). In *Phillips*, the Federal Circuit held that

extrinsic evidence in the form of expert testimony can be useful to a court for a variety of purposes, such as to provide background on the technology at issue, to explain how an invention works, to insure that the court’s understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has the particular meaning the pertinent field.

Id., 415 F.3d at 1318 (citing *Pitney Bowes, Inc. v. Hewlett Packard Co.*, 182 F.3d 1298, 1308-09 (Fed. Cir. 1999)); *Key Pharms. v. Hercon Labs. Corp.*, 161 F.3d 709, 716 (Fed. Cir. 1998). As that court has warned, however, any expert opinions that are unsupported or inconsistent with

the claims themselves, the written description, or the prosecution history, are not useful and accordingly should be discounted. *Id.*, 415 F.3d at 1318-19. In the end, the decision of whether expert testimony is needed rests with the trial court's discretion. *Inpro II Licensing S.A.R.L. v. T-Mobile USA, Inc.*, 450 F.3d 1350, 1357 (Fed. Cir. 2006) (citing *Key Pharm.*, 161 F.3d at 716).

Mindful of these principles and the limited usefulness of expert testimony, I have considered the proffered expert ITC testimony to the extent I have found it to be of assistance in understanding the prior art, technology, and patent specifications. This position appears to be consistent with that of Federal Circuit which, subsequent to *Phillips*, has issued more recent opinions approving of the use of expert testimony to the extent it is found to be helpful. See, e.g., *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1324 (Fed. Cir. 2009); *Serio-US Indus., Inc. v. Plastic Recovery Technologies Corp.*, 459 F.3d 1311, 1319 (Fed. Cir. 2006); *Network Commerce, Inc. v. Microsoft Corp.*, 422 F.3d 1353, 1361 (Fed. Cir. 2005); see also *U.S. Phillips Corp. v. Iwasaki Elec. Co.*, No. 03CIV. 0172, 2006 WL 20504, at *1 (S.D.N.Y. Jan. 3, 2006). In considering that expert testimony, however, I have done so

with circumspection, in recognition of the fact that Hubbell was not a party to the ITC proceeding.⁴

B. Person Of Ordinary Skill In The Art

Before turning to the task of claim construction, I must first determine the relevant prism through which the patent's terms must be viewed. The court's assigned task, when addressing claim construction, is to ascertain how a person of ordinary skill in the art would have understood the disputed claim terms at the time of the invention.

Markman, 52 F.3d at 986. Accordingly, patent claims must be interpreted not through the eyes of the court, nor those of any proffered experts, but rather from the standpoint of a person skilled in the relevant art.

Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1332 (Fed. Cir. 2001). In fashioning the hypothetical construct of that person of ordinary skill in the art, a court should consider the educational level of the inventor, the type of issues encountered in the art, the prior art solutions to problems experienced, the rapidity with which innovations are made in

⁴ I am somewhat troubled by the fact that the expert testimony now relied upon by P&S was requested by Hubbell during the course of discovery in this action, but was withheld by P&S based on the claim that it was expressly prohibited from disclosing the document under the terms of the controlling protective order. See Hubbell Responsive Brief (Dkt. No. 49) Exhs. 1 and 2.

the subject area, the sophistication of the technology involved, and the educational level of workers in the field. *Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 1347 (Fed. Cir. 2000) (citation omitted).

In this instance the definition of a person of ordinary skill in the art is not particularly controversial.⁵ Having considered the submissions of the parties, I recommend that a person of ordinary skill in the art be defined in this instance to include one who has a bachelor's degree in mechanical or

⁵ In its claim construction presentation, P&S has proposed the following definition:

The patents in-suit are directed to a person in the field in electronics or electrical circuits with a bachelor's degree in electrical engineering or equivalent, or to a person in the field of mechanics or mechanisms with a bachelor's degree in mechanical engineering or equivalent, and some practical experience in the field, such as two to three years of design experience in products involving electrical circuits.

. . . The patents are also directed to a person in the field of electronics or electrical circuits having an associate's degree in electrical technology, or to a person in the field of mechanics or mechanisms having an associate's degree in mechanical technology plus at least five years of design experience in products involving electrical circuits.

P&S Opening Claim Construction Brief (Dkt. No. 44) at p. 21. For its part, Hubbell proposes the following definition:

A person of ordinary skill in the art is one who has a bachelor's degree in mechanical or electrical engineering or its equivalent industry training and at least four years of experience in the design, manufacturer and operation of electromechanical devices such as GFCI and similar devices.

Hubbell Opening Claim Construction Brief (Dkt. No. 42) at p. 13 n.1.

electrical engineering or its equivalent, with at least two years of industry experience in the design, manufacture and operation of electrical mechanical devices such as GFCIs and similar devices or, alternatively, a person who has an associate's degree in electrical technology or mechanical technology and at least five years of industry experience in the design, manufacture and operation of electro-mechanical devices such as GFCIs and similar apparatuses.

C. Claim Construction

1. The '398 Patent

The '398 patent, issued on January 14, 1997 and entitled "Ground Fault Interrupter Wiring Device With Improved Moveable Contact System," discloses a GFCI receptacle with "improved contact means moveable between circuit-making and breaking positions, and to the means for biasing the moveable contacts toward movement to one of such positions." '398 Patent 1:7-11; see also *id.* at 1:34-37 ("It is an object of the present invention to provide a gfi wiring device having novel and improved means for carrying the moveable contacts and for transmitting current between fixed contacts during normal operation.") The '398 patent represents a departure from prior art and conventional wisdom, which

generally specified GFCIs with single moveable contacts. The '398 patent, in contrast, discloses a moveable contact structure, in one particular embodiment including dual buss bars each bearing a pair of contacts, the specification noting with regard to that embodiment that

[c]urrent is carried between one of the line and one of the load fixed contacts during normal operation by a first, rigid, electrically conducting member having a pair of spaced contacts for respective engagement with the line and load fixed contacts. Likewise, current is carried between the other set of line and load contacts by a second conducting member, identical to the first, such members being in the nature of buss bars.

'398 Patent at 1:54-61.

At issue in this suit is claim 1 of the '398 patent, an independent claim, as well as claims 2, 5, 6 and 7, all of which are directly or indirectly dependent on claim 1. Those claims provide as follows:

1. A ground fault interrupter (gfi) wiring device for connection in an electrical circuit, said device comprising:
 - a) housing means defining an enclosed space;
 - b) at least one pair of electrical terminals fixedly supported in spaced relation within said enclosed space;
 - c) A unitary, electrically conducting member carrying a pair of spaced electrical contacts;
 - d) mounting means for said conducting member to permit

movement thereof between a first position, wherein said pair of contacts are in respective, circuit-making engagement with said pair of terminals, and a second position, wherein both of said pair of contacts are in spaced, circuit-breaking relation to said pair of terminals;

- e) biasing means urging said conducting member toward movement to said second position;
- f) latching means releasably retaining said conducting member in said first position; and
- g) actuating means for releasing said latching means to permit said biasing means to move said conducting member to said second position in response to a predetermined fault condition in said electrical circuit.

2. The gfi device of claim **1** wherein said biasing means comprises at least one spring member.

* * *

5. The gfi device of claim **2** wherein said spring member is a leaf spring.

6. The gfi device of claim **1** wherein said device is a gfi receptacle and said housing means includes a plurality of apertures for receiving the blades of an electrical plug.

7. The gfi device of claim **6** wherein said device is a two-pole device including first and second pairs of spaced electrical terminals, first and second electrically conducting members each carrying a pair of spaced electrical contacts, and mounting means for both of said conducting members to permit concurrent movement thereof between circuit-making and circuit-breaking relation of said contacts said terminals.

'398 Patent 13:24-48, 13:55-67.

a) Preamble

The first dispute regarding the '398 patent concerns the preamble to claim 1 of the '398 patent, which specifies “[a] ground fault interrupter (gfi) wiring device for connection in an electrical circuit, said device comprising:

. . . . '398 Patent 13:24-25. P&S proposes that the introductory language be viewed as intended to limit claim 1, and proposes as a construction “a ground fault circuit interrupter (or “GFCI”),” arguing that this construction was adopted by ALJ Charneski and not reviewed by the Commission.⁶

In general, the portion of a patent claim which precedes a transitional term such as “comprising,” the word which separates the claim term now under consideration from the remainder of claim 1 of the '398 patent, is viewed as a claim preamble. *Rapoport v. Dement*, 254 F.3d 1053, 1058-59 (Fed. Cir. 2001). A preamble in a patent claim is generally

⁶ In the ITC proceeding P&S proposed that the preamble be construed as specifying “a ground fault interrupter receptacle intended for the electrocution protection of personnel that functions to deenergize a circuit within some predetermined period of time when current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit. These devices are intended for use only in alternative-current circuits and for use on 120 Volts AC or 120/240 Volts AC, 60 Hertz circuits.” See Nocilly Decl. (Dkt. No. 41-2) Exh. W at p. 44. The ALJ rejected this interpretation and instead construed the introductory language to “to limit the invention to a GFCI (otherwise known as gfi) as understood by one of ordinary skill”, finding that the various other limitations set forth in P&S’s proposed construction are not actually contained in the preamble. *Id.* at pp. 45-46.

not considered to impose a limitation or claim element which must also be found in an accused device in order to establish infringement. *Pitney Bowes*, 182 F.3d at 1305 (indicating that a preamble that “merely states . . . the purpose or intended use of an invention . . . is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation”). Only when a preamble “breathes life” into a claim, either because it was relied upon by the applicant during the prosecution to distinguish the claimed invention from prior art, or where elements of the claim set forth in the body specifically refer back to elements in the preamble, is it considered an essential claim element. *Id.* at 1306; see also *Loctite Corp. v Ultraseal, Ltd.*, 781 F.2d 861, 867 (Fed. Cir. 1985), overruled on other grounds, *Nobelpharma AB v. Implant Innovations, Inc.*, 141 F.3d 1059 (Fed. Cir. 1998).

The Federal Circuit has addressed the issue now presented in a number of cases, on one occasion observing that

[i]n general, a preamble limits the invention if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim. Conversely, a preamble is not limiting where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.

Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (quotation and citations omitted); *see also On Demand Machine Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1343 (Fed. Cir. 2006). This statement is consistent with the principle that it is the body of a claim, rather than the intended use specified in such introductory language, that controls and provides the critical attributes of a patented invention. *See Catalina Mktg.*, 289 F.3d at 808; *see also Schumer v. Lab. Computer Sys., Inc.*, 308 F.3d 1304, 1310 (Fed. Cir. 2002).

There is no particular bright line test to be followed in every case when determining whether language of a preamble is properly regarded as limiting; there are, however, established guideposts that can inform a court's analysis. *Catalina Mktg.*, 289 F.3d at 808. Among them is the principle that "when the preamble is essential to understand limitations or terms in the claim body, the preamble limits claim scope." *Id.* (citing *Pitney Bowes*, 182 F.3d at 1306); *see also Seachange Int'l, Inc. v. C-COR Inc.*, 413 F.3d 1361, 1375-76 (Fed. Cir. 2005). Critically, in *Catalina Mktg.* the Federal Circuit noted that "preambles describing the use of an invention generally do not limit the claims because the patentability of apparatus or composition claims depends on the claimed structure, not on

the use or purpose of that structure.” *Catalina Mktg.*, 289 F.3d at 809 (citing *In re: Gardiner*, 36 C.C.P.A. 748, 171 F.2d 313, 315-16, 80 USPQ 99, 101 (1948)). As an illustration of the point being made, the Federal Circuit in that case hypothesized an invention of “a composition for polishing shoes”, noting that a subsequent inventor determining that the very same composition could be used to grow hair “cannot invoke this use limitation to limit [the patent holder’s] composition claim because that preamble phrase states a use or purpose of the composition and does not impose a limit on [the patent holder’s] claim.” *Id.* at 809-10.

In this instance P&S asserts that the preamble of claim 1 is limiting in that element (g) of that claim expressly references the electrical circuit mentioned in the preamble, and that while the technology specified in claim 1 is susceptible of use in other types of settings, the ’398 patent clarifies that the invention is limited to use in GFCI wiring devices. See, e.g. ’398 Patent 1:7-12 (“[t]he present invention relates to the class of electrical wiring devices known as ground fault interrupter (gfi) receptacles. . . .”); 1:34-37 ([i]t is an object of the present invention to provide a gfi wiring device”); 1:39-40 (“[a]nother object is to provide improved means for biasing and moving the moveable contacts of a gfi

wiring device."); 1:51-52 ("[t]he gfi device of the present invention is disclosed in the form of a duplex receptacle. . ."); see also '398 Patent 2:43-44, 3:65-4:2. Hubbell seemingly does not challenge this contention.

In light of this narrowing by the patentees of the subject matter intended to be covered by their invention, I agree with P&S and will recommend a finding that the introductory language at issue is limiting, restricting the device disclosed in claim 1 as being for use as "a ground fault circuit interrupter (or "GFCI")." See *Conoco, Inc. v. Energy and Envtl. Int'l, L.C.*, 460 F.3d 1349, 1363-64 (Fed. Cir. 2006).

b) "at least one pair of electrical terminals fixedly supported in spaced relation within said enclosed space"

As an appropriate construction of this next disputed language, P&S proposes "at least one pair of line and load terminals that are spaced and secured within the housing". Hubbell does not oppose this proposed language.

The construction offered by P&S in this case appears to be fully supported by the patent itself. Figure 1 of the '398 patent, for example, reveals "a pair of screws 24, 24' for electrical connection of the bare ends of conductors on the line and load sides of the device; . . .", adding that "a second pair of screws are provided for connection of conductors on the

opposite side of the device 10.” '398 Patent 4:26-30. In addition to connecting the GFCI to conductors, the screws specified appear to be designed to secure the line 92, 94 and load terminals 96, 98 in the device.

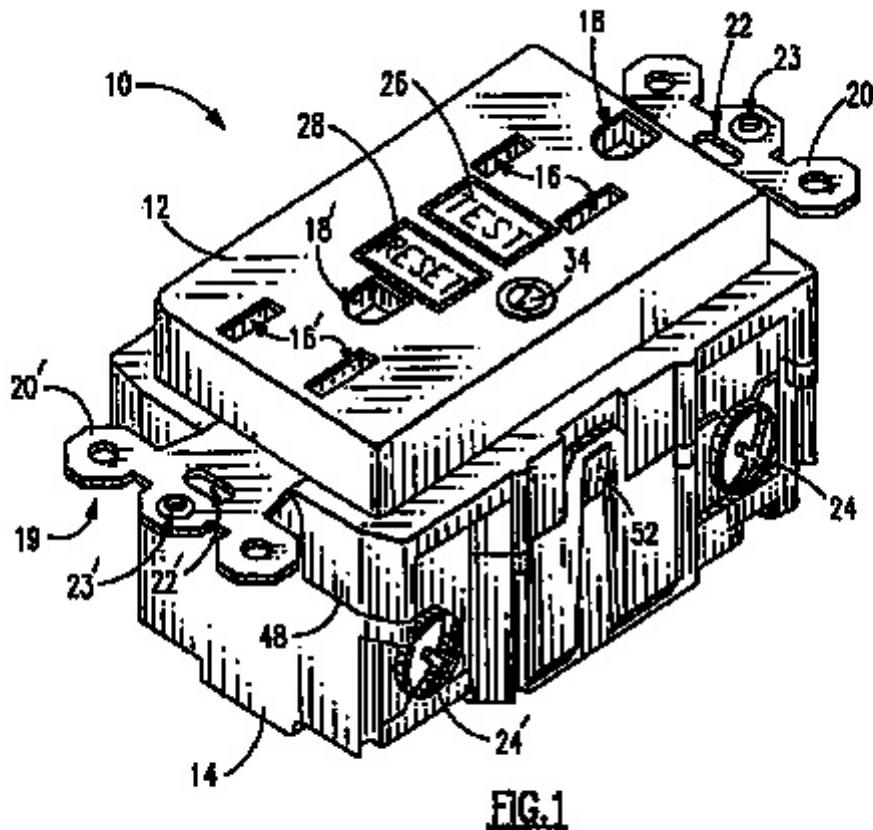


FIG.1

Id. at 6:28-30, 6:48.

The '398 patent prosecution history also refers to line and load terminals. See, e.g., Nocilly Decl. (Dkt. No. 41-2) Exh. B. at PS 336697 (“When the elements are in the closed or circuit-making condition,

contacts 80b and 80c are in engagement with contacts 92f (of the hot load terminal) and 75c (of the hot line terminal), respectively; similarly, contacts 81b and 81c are in engagement with corresponding contacts on the neutral line and load terminals 94 and 76, respectively.”) The proposed definition is also consistent with the general understanding within the industry that when used in the context of an electrical circuit the word “terminal” generally signifies a point of electrical connection.⁷ See, e.g. *In re Translogic Tech., Inc.*, 504 F.3d 1249 (Fed. Cir. 2007).

Based upon the foregoing, I recommend acceptance of the P&S proposed construction of this term as meaning “at least one pair of line and load terminals that are spaced and secured within the housing.”

- c) “unitary, electrically conducting member carrying a pair of spaced electrical contacts”

P&S proposes that this claim language be construed to mean “a member that provides an electrical current carrying path between two or more spaced contacts.” Hubbell counters that it should be deemed to mean “a single, rigid member supporting two electrical contacts, which are

⁷ A “terminal” when referred to in an electrical context is also commonly understood to mean, “a device attached to the end of a wire or cable or to an electrical apparatus for convenience in making connections.” MERRIAM-WEBSTER’S COLLEGiate DICTIONARY 1216 (10th ed. 1999).

separated by a particular gap equal to a distance sufficient to prevent electrical arching between their respective mating terminals.” From these competing definitions and their presentations it appears that this claim term presents three issues, including 1) whether the member specified must be rigid; 2) whether the contacts specified must be included as integral parts of the member’s structure; and 3) what is meant by the term “unitary”.

i) rigidity

Citing the references in both the '398 patent and the history associated with the prosecution of that patent, Hubbell requests that the court read into this claim term the concept of rigidity. P&S counters that while the patent specification does make reference to buss bars and depicts a buss bar in at least one embodiment, this alone is not dispositive in revealing an intention to limit the claim term to a rigid member.

At first blush there is considerable appeal to Hubbell's position. In its abstract portion, the '398 patent describes “[a] pair of electrically conducting members in the form of small buss bars each carrying two, spaced contacts.” '398 Patent Abstract at lines 2-4. The summary of the '398 invention broadly describes the “unitary, electrically conducting

member" by stating that "[c]urrent is carried between one of the line and one of the load fixed contacts during normal operation by a first, *rigid*, electrically conducting member having a pair of spaced contacts for respective engagement with the line and load fixed contacts." '398 Patent 1:54-58. (emphasis added). The summary goes on to note that the current-carrying members are "in the nature of buss bars," adding that "[t]he buss bar members are carried in spaced relation on a moveable block member with the spaced contacts all facing in the same direction." *Id.* at 1:58-63.

When describing their invention, moreover, the patentees summarized it as including a *rigid* conducting member with a pair of spaced contacts. '398 Patent 1:55-58. It is well established that a patentee is entitled to act as his or her own lexicographer and, consequently, a definition propounded within a patent should ordinarily control and exclude definitions that are contrary to the patent applicant's manifest intent. See *Phillips*, 415 F.3d at 1316; see also *Sinorgchem Co., Shandong v. Int'l Trade Comm'n*, 511 F.3d 1132, 1136 (Fed. Cir. 2007).

While the concept of rigidity is prevalent throughout the specification of the '398 patent, it is conspicuously absent from the claim now under

consideration. The court is naturally hesitant to read the concept of rigidity into claim 1 of the '398 patent despite its absence. See *Linear Tech. Corp. v. Int'l Trade Comm'n*, 566 F.3d 1049, 1058 (Fed. Cir. 2009) (citing *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004)).

The claim construction exercise now being undertaken must begin with the actual language of the disputed claim itself. *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998) (citing *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620 (Fed. Cir. 1995)). The claims provide the formal definition of the patent, and it is not for a court to broaden, narrow or rework what the patentee chose to claim as his or her invention; the court's sole function is to interpret claim terms. *Autogiro Co. of Am. v. United States*, 384 F.2d 391, 395-96 (Ct. Cl. 1967). In circumstances where the language of the claim is clear, "the court need not and may not go beyond the claim to the specification." *Paeco, Inc. v. Applied Moldings, Inc.*, 562 F.2d 870, 874 (3d Cir. 1977) (citing *Noll v. O.M. Scott Co.*, 467 F.2d 295, 298 (6th Cir. 1972), *cert. denied*, 411 U.S. 965, 93 S.Ct. 2143 (1973)); *Schmidinger v. Welsh*, 383 F.2d 455, 460 (3d

Cir. 1967), *cert. denied*, 390 U.S. 946, 88 S.Ct. 1031 (1968)).

While it is the claim terms themselves that control, it is well established that “claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention.” *United States v. Adams*, 383 U.S. 39, 49, 86 S.Ct. 708, 713 (1966) (collecting cases). Since the specification section describes the actual invention, “it is the single best guide to the meaning of a disputed term” and is therefore “highly relevant to the claim construction analysis.” *Vitronics Corp.*, 90 F.3d at 1582.

When turning to a patent specification for guidance, a court must exercise restraint; even though claims should be construed with the specification, any extraneous limitations from the specifications may not be imported into the claim, *Comark Communications*, 156 F.3d at 1186 (citing *Sjolund v. Musland*, 847 F.2d 1573, 1581 (Fed. Cir. 1988), nor should the specification “trump the clear meaning of claim terms.” *North American Vaccine, Inc. v. American Cyanamid Co.*, 7 F.3d 1571, 1582 (Fed. Cir. 1993) (Rader, J. dissenting), *cert. denied*, 511 U.S. 1069, 114 S.Ct. 1645 (1994) (citing *E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1443 (Fed. Cir. 1988), *cert. denied*, 488

U.S. 986, 109 S.Ct. 542 (1988)). The term “extraneous” has been interpreted to mean “a limitation read into a claim from the specification wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim.” *E.I. Du Pont de Nemours & Co.*, 849 F.2d at 1433. Courts are warned to exercise caution and to appreciate the distinction between interpreting what a term in the claim means, and “adding an extraneous limitation appearing in the specification, [the latter of] which is improper.” *Intervet America Inc. v. Kee-Vet Labs., Inc.*, 887 F.2d 1050, 1053 (Fed. Cir. 1989).

As can be seen, claim 1 of the '398 patent is conspicuously equivocal regarding the issue of rigidity, and the claim specification does little to provide the lacking clarification. Consideration of claim 1 in relation to other claims of the patent, however, including notably claim 8, strongly suggests that rigidity is not an essential element of claim 1 and should not be read into it. Claim 8, which is indirectly dependent upon claim 1, specifies a GFCI device “wherein each of said conducting members is a buss bar. . . .” '398 Patent 14:1-2. To adopt Hubbell’s suggested interpretation of claim 1 would be to render claim 8 superfluous, and consequently cannot represent a defensible outcome.

Acumed LLC v. Stryker Corp., 483 F.3d 800, 806 (Fed. Cir. 2007) (when a limitation is contained in a dependent claim a presumption is created that is it not required by the corresponding independent claim), *cert. denied*, 552 U.S. 1022, 128 S. Ct. 615 (2007).

In sum, while the '398 patent specification makes reference at certain points to the concept of rigidity, and various of the embodiments reflected in the patent disclose rigid members in the nature of buss bars, because the term "rigid" was not included in claim 1, I recommend that the court reject Hubbell's attempt to restrict that claim by importing the concept of rigidity.

ii) carrying contacts

The second issue now raised concerns whether the contacts specified must be included as part of the member's structure. Embodiments revealed in the '398 patent depict various configurations of this electrically conducting member, including in Figure 11, set forth below, showing two buss bars **80** and **81**, carrying spaced contacts **80b** and **80c**, as well as **81b** and **81c**, and Figure 34, also included below, showing leaf springs "attached to (or formed integrally)" with buss bar **80**.

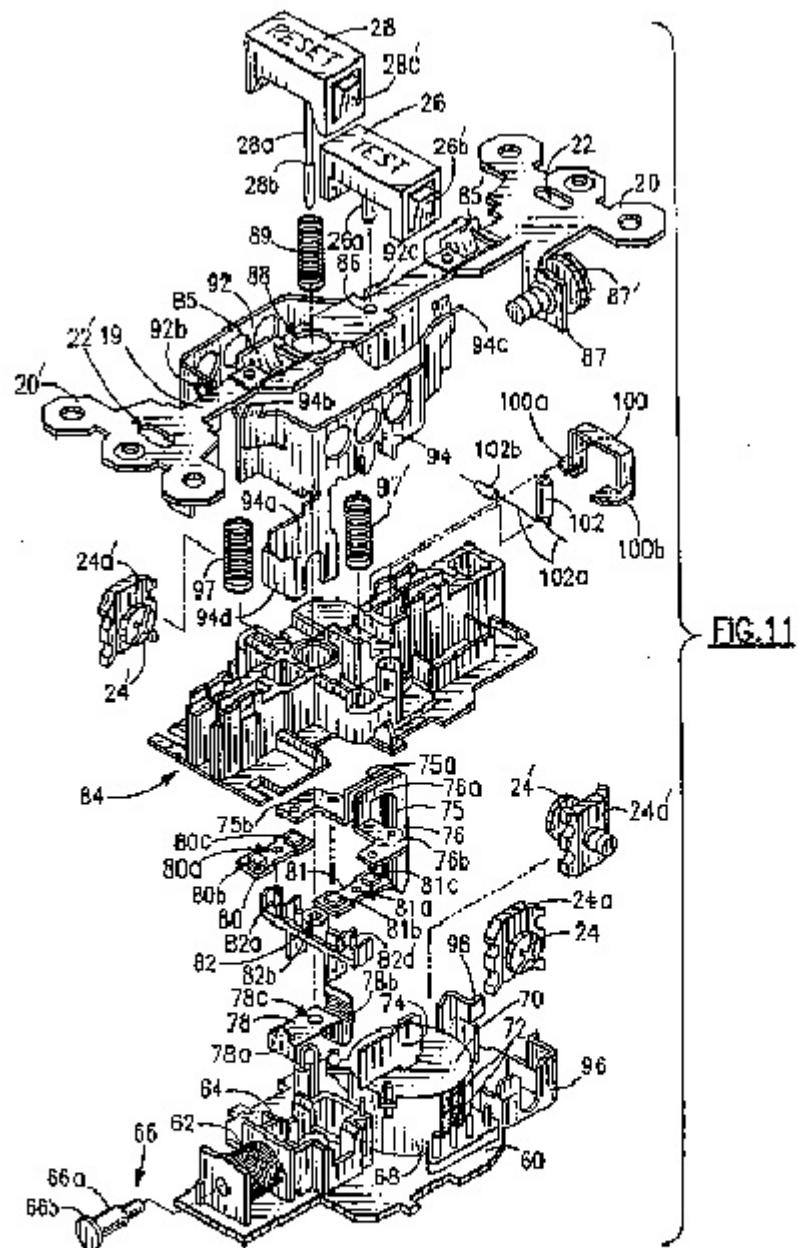
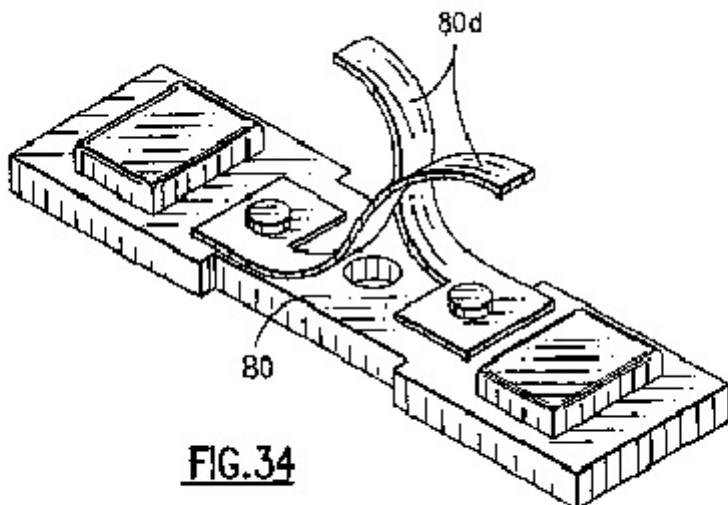


FIG.11



During prosecution of the '398 patent, the patent applicants attempted to distinguish certain prior art, including United States Patent No. 4,595,894, issued to Doyle, *et al.*, and United States Patent No. 5,223,810, issued to Van Haaren, noting that “[n]either reference teaches or suggests a unitary member carrying a pair of spaced contacts, as recited in [the] applicants’ claim 1.” Nocilly Decl. (Dkt. No. 41-2) Exh. B at PS-00336699 (emphasis in original).

The definition offered by P&S of the disputed term before the ITC and in this court overlooks the fact the claim term requires that the conducting member “carry” a pair of spaced electrical contacts, its proposal instead only requiring the member to conduct current between two or more spaced contacts. The construction proposed by P&S was

accepted by ALJ Charneski. In modifying that portion of the ALJ's decision the Commission, ascribing definitions consonant with the ordinary meaning of the words, concluded that the disputed term in question should be interpreted as requiring the member to carry two contacts, meaning that they must in some way be mounted on or affixed to the member. See Nocilly Decl. (Dkt. No. 41-2) Exh. X at p. 6.

Finding nothing in the patent specification or prosecution history to conclude that the contacts specified need not in some way be a part of or disposed upon the electrically conducting member specified, I recommend that "carrying two spaced contacts" be included as part of the definition of the term in question.⁸

⁸ Without discussion regarding the matter, ALJ Charneski construed the word "pair" as meaning "two or more." Nocilly Decl. (Dkt. No. 41-2) Exh. W at pp. 47-48. P&S now urges adoption of that definition, which was upheld on appeal to the Commission, see *id.*, Exh. X at p. 6. Absent clear indication that the patentee intended a use of the term extending beyond its ordinary and customary meaning, it would be improper for the court to read into the patent a broader definition, as now urged by P&S. The claim term itself refers to the number of contacts as "a pair", which is commonly understood within the patent law community and elsewhere to mean two. See THE AMERICAN HERITAGE DICTIONARY 1263 (4th Ed. 2000) (defining "pair", in relevant part, as "[t]wo corresponding persons or items, similar in form or function and matched or associated: a pair of shoes."). The patent prosecution history similarly refers to a pair, containing the statement "one of the principal features of the gfi wiring device of the present invention is the mounting of a pair of electrical contacts on a single, electrically conducting member in the nature of a buss bar." Nocilly Decl. (Dkt. No. 41-2) Exh. B at PS 00336697. I have therefore eliminated the "or more" from plaintiff's proposed definition, as inconsistent with the intrinsic and extrinsic evidence now before the court.

iii) unitary

As was the case with regard to “carrying”, the definition proposed by P&S for the term now under consideration is also silent with regard to the word “unitary”. The '398 patent specification nowhere defines that term. Neither the specification nor the patent prosecution history, however, suggests that the term should not be accorded its ordinary meaning, conveying the concept of a unit or a whole.⁹

Consistent with the claim language and intrinsic evidence, I recommend that the term “a unitary, electrically conducting member carrying a pair of spaced electrical contacts” be construed to mean “a member comprising a unit, carrying two spaced contacts and providing an electrical current-carrying path between the two spaced contacts.”¹⁰

d) “mounting means”

The next controverted claim term is “mounting means.”¹¹ As both

⁹ “Unitary” is commonly understood as referring to a unit or a whole. See THE AMERICAN HERITAGE DICTIONARY 1882 (4th ed. 2000); see also MERRIAM-WEBSTER’s COLLEGiate DICTIONARY 1293 (10th Ed. 1999).

¹⁰ To the extent that in its proposed construction Hubbell purports to interject the additional concept that the electrical contacts must be “separated by a particular gap equal to a distance sufficient to prevent electrical arching between their respective mating terminals” I recommend rejection of that additional element as placing a limitation that is not specified in the claim itself.

¹¹ P&S proposes a construction of the term “housing means defining an enclosed space” to include a function of defining an enclosed space and a

parties recognize, this and other portions of the '398 patent claims are drafted in classic "means-plus-function" format. Such claims are subject to the specific provisions of 35 U.S.C. § 112 (paragraph 6) to include the structure disclosed in the patent for performing the function recited in the claim, as well as any structural equivalents thereof. *Cybor Corp. v. FAS Technologies, Inc.*, 138 F.3d 1448, 1457 (Fed. Cir. 1998). When analyzing a means-plus-function claim term, a court must first identify a specified function, and then determine the components described in the patent specification that perform the designated function. *Sage Products, Inc. v. Devon Indus. Inc.*, 126 F.3d 1420, 1428 (Fed. Cir. 1997).

The function portion of the "mounting means" term is not controversial.¹² The relevant portion of claim 1 specifies, in simple and

corresponding structure of "a housing, and structural equivalents thereof." Hubbell does not oppose this construction. See P&S Opening Claim Construction Brief (Dkt. No. 44) at p. 33.

¹² In its initial brief, P&S maintains that the ALJ accepted its currently-proposed construction of this term, and that the ALJ's determination was left intact by the ITC. See P&S Opening Claim Construction Brief (Dkt. No. 44) at p. 38. In point of fact, however, while the ALJ may have adopted that proposal, his construction was modified by the Commission in two respects, including to add "mounting" to the specified function, and additionally to note that the claim language requires the function of permitting movement to a "second position, wherein both of said pair of contacts are in spaced, circuit-breaking relation to said pair of terminals", rejecting the notion that permitting only one contact to move into spaced, circuit breaking relation would be sufficient to perform the claimed function. Nocilly Decl. (Dkt. No. 41-2) Exh. X at pp. 8-10.

unequivocal terms, that the mounting means must “permit movement [of the conducting member] between a first position, wherein said pair of contacts are in respective, circuit-making engagement with said pair of terminals, and a second position, wherein both of said pair of contacts are spaced, circuit-breaking relation to said pair of terminals; . . .”. ’398 Patent 13:31-37. Like the ITC, I conclude that the function portion of the definition advanced by P&S overlooks the requirement of mounting, and therefore recommend that the function associated with this term be

defined to include “mounting the conducting member in such a way as to permit movement between a first position, wherein a pair of contacts are in respective, circuit-making engagement with a pair of terminals and a second position, wherein both of the pair of contacts are in spaced, circuit-breaking relation to the pair of terminals.”

A somewhat more difficult issue is presented in connection with this disputed term when attempting to discern the corresponding exemplary structure specified for fulfilling that function. The ’398 patent reveals “[b]uss bars **80, 81** [which] are supported on opposite, upper sides of latch block **82**. . .”. ’398 Patent 6:5-6; see also *id* at 11:17-28, Figs. 11, 30, 30a and 31. The patent drawings also depict the latch block **82** as a central

body with laterally extending arms that support the buss bars. *Id.* at Figs. 11, 30, 30a, 31. Under the circumstances, I recommend a finding that a person of ordinary skill in the art would understand the corresponding structure to include “a mounting mechanism such as a block, including a central body and an arm for supporting the conducting member, and structural equivalents thereof.”

e) “biasing means urging said conducting member toward movement to said second position”

In this instance, once again, the function being performed is readily discernable, it being to urge the specified conducting member toward movement to the designated second position where, as the previous subsection notes, the contacts are spaced, resulting in a breaking of the circuit. The controversy surrounding this term relates to the corresponding structure, and in particular whether it is limited, as Hubbell argues, to the coil springs and leaf springs included within certain of the '398 patent drawings. P&S proposes that the structure be defined as not so limiting, and instead to include “a resilient member such as a coil spring or leaf spring, and structural equivalents thereof.”

It is true, as Hubbell notes, that the biasing means reflected in various of the examples within the patent include references to coil

springs or leaf springs. There is no suggestion in the patent, however, that the biasing means referenced in claim 1 is intended to be limited to one of these two mechanisms, to the exclusion of other types of resilient members. Absent clear indication in the claim terms themselves, the patent specification, or the prosecution history, that the structure associated with the biasing means was intended by the inventors as being limited to coil springs and leaf springs, it would be inappropriate for the court to interject that additional limitation into the patent. See *Linear Tech. Corp.*, 566 F.3d at 1058. Accordingly, I recommend a finding that the exemplary corresponding structure associated with this term should include “a resilient member such as a coil spring, leaf spring, and structural equivalents thereof,” as proposed by P&S.

f) “latching means releasably retaining said conducting member in said first position”

The chief battleground over this means plus function claim term surrounds the latch spring **78**, also occasionally referred to as a “latch member”, and whether it must be included as part of the corresponding structure, as Hubbell argues and the ITC determined, or instead whether only the hole in the latch with a spring biasing pin to retain the conducting member in the first position is required, as advocated by P&S.

While the parties offer slightly different wording for the function associated with this term, it is relatively non-controversial. The relevant function specified is clearly “releasably retaining the conducting member in the first position.”¹³ The “releasably latching retaining” function is described in the patent specification as follows:

To place the elements of device **10** in normal operating position, button **28** is manually depressed to move shoulder **28b** past the edge of latch spring **78** which adjoins opening **78c**. During this movement, latch spring **78** will be moved slightly toward the right, as viewed in FIG. **30**, compressing leaf spring **78b** within its cavity in support member **64**. When shoulder **28b** moves below latch spring **28**, the latter is moved back toward the left by the biasing force of leaf spring **78b** and the reset button stem is engaged with the latch spring.

When manual pressure is removed from reset button **28**, spring **89** moves the button back in the upward direction. Due to the engagement of shoulder **28b** with latch spring **78**, the latter is also moved upwardly, together with latch block **82** and buss bars **80** and **81**. This further compresses coil springs **97** and **97'**, meaning of course that the biasing forces of spring **89** exceeds the combined biasing forces of springs **97** and **97'**. Upward movement of the elements places contact **80b** on buss bar **80** in engagement with contact **92f** on the lower side of load terminal arm **92e**, and contact **80c** in engagement with contact **75c** on the lower side of portion of **75b** of line contact **75**, as shown in FIG **30**. Of course, contacts **81b** and **81c** of buss bar **81** are also moved into engagement with corresponding contacts on load terminal **94** and line contact **76**. When the contacts are so engaged, the free ends of reset

¹³ The term “first position” is defined elsewhere, and the court perceives no need, as Hubbell proposes, to reiterate what that first position is.

button tabs **28c** are spaced from (below) the opposing, internal surface portions of front housing section **12**. Thus, electrical communication between the line and load sides of device **10** is established for both the hot and neutral conductors through buss bars **80** and **81**.

'398 Patent: 10:56-11:17. The embodiments disclosed in the '398 patent all contain a latch spring **28**, or latch member, the spring portion of which performs or contributes to the function of releasability. Under these circumstances I agree with the Commission and conclude that the structure proposed by P&S should be slightly modified to include reference to a latch spring, and recommend that the structure associated with this term include "a latch member and a pin passing through a hole in a block having a shoulder that cooperates with a hole in the latch member, which latch member also includes a spring biasing the pin to retain the conducting member in the first position, and structural equivalents thereof."

- g) "actuating means for releasing said latching means to permit said biasing means to move said conducting member to the second position in response to a pre-determined fault condition to said electrical circuit"

Based upon the parties' submissions, this term does not appear to be particularly controversial. The patent specification discloses the circumstances under which the latching means is released, or

disengaged. See '398 Patent 11:29-55. The function performed in accordance with this term is the "releasing said latching means to permit said biasing means to move said conducting member to the second position in response to a pre-determined fault condition in said electrical circuit." *Id.* at 13:43-46. The corresponding structure associated with that function, according to the patent and based upon agreement of the parties, includes "a solenoid, an armature, toroidal cores and associated windings, and an SCR, and structural equivalents thereof." See, e.g, *id* at 11:29-55. I find, based upon my review of the patent, that these proposed definitions of the appropriate function and structure associated with this claim term are well supported, and therefore recommend their adoption.¹⁴

2. The '340 Patent¹⁵

The '340 patent is addressed to the issue of miswiring of GFCI devices. Describing the background of the invention disclosed in the '340 patent, the inventors noted that

[o]ne problem associated with protective devices relates

¹⁴ The parties have withdrawn a prior request for construction of the term "two-pole device" as utilized in claim 7 of the '398 patent.

¹⁵ As will be seen, the '340 patent and the '386 patent are related, and both claim priority based upon a series of three earlier filed applications incorporated within them by reference. See '386 Patent 1:6-17; '340 Patent 1:6-14. Both derive from an application filed on November 21, 2000, resulting in the issuance of the '510 patent.

to the device being miswired in the filed [sic] by an installer. Miswiring refers to a situation wherein the installer couples the line terminals to the load and couples the load terminals to the AC power source. Miswiring may result in the protective device not protecting the user from the fault conditions described above. Labels and installation instruction sheets have been used to prevent miswiring. However, instructive material may be ignored by an installer.

'340 Patent 2:12-20. The '340 patent discloses a means of detecting miswiring and for deactivation of the device in the event of miswiring. *Id.* 2:28-31.

At issue in this action are claim 14 of the '340 patent, an independent claim, as well as dependent claims 18, 19 and 21.¹⁶ Those claims provide as follows:

14. An electrical wire device comprising:
line terminals and load terminals;
at least one detection circuit including a circuit segment coupled between the line terminals and configured to generate a predetermined signal in response to detecting a proper wiring condition, the predetermined signal not simulating a fault condition, a proper wiring condition being effected when the line terminals are connected to a source of AC power; and an interrupting contact assembly coupled to the at least one detection circuit, the interrupting contact assembly including four sets of

¹⁶ Claim 24 of the '340 patent is also implicated in this action. That claim, however, is dependent upon claim 21, which in turn depends upon claim 14. The parties have not requested court intervention with regard to any of the terms unique to claim 24.

interrupting contacts that are configured to provide electrical continuity between the line terminals and the load terminals in a reset state and configured to interrupt the electrical continuity in tripped state, the interrupting contact assembly being substantially prevented from effecting the reset state absent the predetermined signal being generated by the at least one detection circuit.

* * *

18. The device of claim 14, wherein the at least one detection circuit includes a wiring state detection circuit configured to generate the predetermined signal.
19. The device of claim 18, wherein the wiring state detection circuit is configured to permanently open circuit a predetermined time after AC power is coupled to the line terminals.

* * *

21. The device of claim 14, wherein the at least one detection circuit includes a fault detection circuit coupled to the line terminals, the fault detection circuit being configured to generate a fault detection signal in response to detecting at least one fault condition.

'340 Patent 10:7-25, 10:35-50.

- a) "a circuit segment coupled between the line terminals"

The controversy over this first disputed '340 patent claim term

centers upon the definition of the word “coupled”.¹⁷ Pointing to the commonly understood usage of the term in the fields of electrical and electromechanical technology, P&S offers an interpretation that would allow for connection, either directly or indirectly. Hubbell, by contrast, asserts that direct connection is required by the term as utilized in the various patents in suit, including the '340 patent.

The Federal Circuit had occasion to address the term “coupling” in its decision in *NeoMagic Corp. v. Trident Microsystems, Inc.*, 287 F.3d 1062 (Fed. Cir. 2002), a case involving an integrated circuit technology patent disclosing a graphics engine controlling the display of graphics on computer monitors. There, the Federal Circuit began its examination of the usage of the term “coupling” within the patent in suit by observing that “[t]he ordinary meaning of ‘coupling’ refers to an electrical communication – the transfer of energy – between two circuits, . . .”, later going on to note that the technical definition of the term also means “[a] mutual relation between two circuits that permits energy transfer from one to another, through a wire, resistor, transformer, capacitor, or other device.”

¹⁷ Hubbell’s opening claim construction brief does not address this issue, which instead is comprehensively addressed in its reply brief, thereby having the unfortunate effect of depriving P&S of a fair opportunity to respond to the arguments being raised by the defendant regarding this contested term.

NeoMagic, 287 F.3d at 1070-71 (quoting McGRAW HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS 474 (5th Ed. 1995)).¹⁸

Other courts addressing the concept of coupling in the context of electronics have taken a similar approach. In *Silicon Graphics, Inc. v. n Vidia Corp.*, 58 F. Supp.2d 331 (D. Del. 1999), for example, the court was required to construe claim language that included “a cache memory coupled to said input.” Interpreting the word “coupled”, the court found that the customary, accepted meaning in the electronic context is not limited to direct coupling, noting that the specification and claims of the patent in that case evidenced a broader intended use of the term. *Id.* at 345-46. The court thus found no reason not to apply the ordinary meaning of the term, encompassing direct and indirect connection. *Id.* at 346; see also *Network Appliance, Inc. v. Bluearc Corp.*, 374 F. Supp.2d 825, 839 (N.D. Cal. 2005) (citing with approval *Silicon Graphics*); *GSK Techs. Inc. v. Eaton Elec. Inc.*, No. 6:06-CV-358, 2008 WL 906713, at *5 (E.D. Tex. Apr. 1, 2008) (“One of ordinary skill in the art would understand ‘electrically coupled’ to mean ‘arranged so that electrical signals may be

¹⁸ The plaintiff in that case placed particular emphasis upon technical dictionary definitions of the term “coupling”. It should be noted, however, that the decision in *NeoMagic* predicated the Federal Circuit’s *en banc* decision in *Phillips*, in which that court significantly de-emphasized the role of such dictionary definitions in the claim construction calculus. See *Phillips*, 415 F.3d at 1320.

passed either directly, or indirectly via intervening circuitry, from one component to another.”) (citation omitted) *SmartDisk Corp. v. Archos, S.A.*, No. 2-05-CV-101 (TJW), 2006 WL 3448645, at * 6 (E.D. Tex. Nov. 28, 2006) (“the court has consistently construed the term ‘coupled’ to mean ‘directly or indirectly connected.’”).

The language of the '340 patent specification does not clearly delineate that the term “coupled” is not used in its traditional sense within the field involved, as would be understood by those of ordinary skill in the art. In the ITC proceeding Dr. Thomas Harman explained that the term “coupled” is commonly used in the field of electrical and electro-mechanical technology as implicating a relationship between components, which can be accomplished through direct connection or indirectly, through intervening components, or even by way of a magnetic field.¹⁹ See Nocilly Decl. (41-2) Exh. 23 at pp. 833-34.

Urging the court to depart from this customary meaning, Hubbell

¹⁹ Dr. Harman, an expert retained by P&S, testified to various opinions before the ITC regarding the '340 patent, including on the issue of coupling. See Nocilly Decl. (41-2) Exh. Z-3 at pp. 823-34. Dr. Harman was accepted by ALJ Charneski as an expert in the fields of electrical engineering and GFCI devices, based upon his qualifications as a professor and master electrician for thirty years and his position as a special expert on panel no. 2 of the National Electrical Code, the panel responsible for GFCI's, as well as his participation in the authorship of the *Guide to the National Electrical Code*, used by electricians when studying for master electrician licenses. *Id.* Exh. 23 at pp. 802-804.

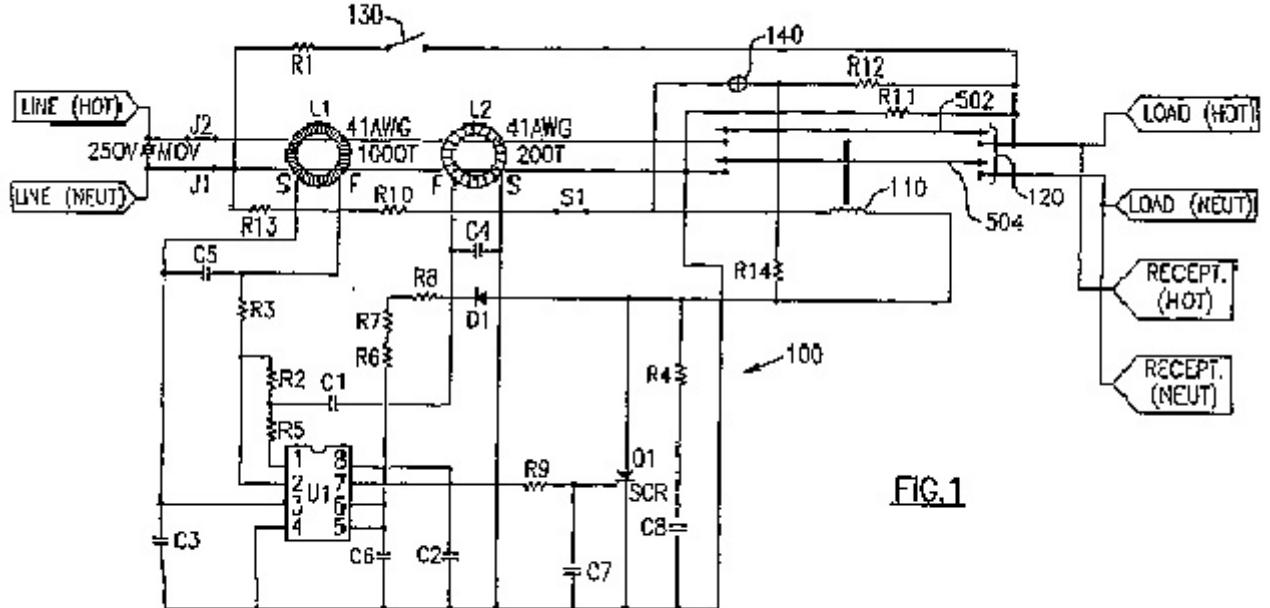
asserts that to adopt such a broad definition would render the claim term nugatory. Hubbell adds that usage of the term in the patent specification suggests an intent to limit its meaning to signifying only a direct connection.

The term “coupled” is utilized sparingly in the ’340 patent. It is true, as Hubbell argues, that the word can be found at certain points including, for example, in claims 19 and 20, in a context implying a direct connection:

- 19: The device of claim **18**, wherein the wiring state detection circuit is configured to permanently open circuit a predetermined time after AC power is coupled to the line terminals.
20. The device of claim **19**, wherein the wiring state detection circuit includes at least one fusible element configured to permanently open-circuit a predetermined time after the AC power is coupled to line terminals.

’340 Patent, 10:38-45. As Hubbell suggests, the usage of the term in these claims is strongly suggestive of the requirement of a direct connection.

There are other indications, however, that the term was not intended to be so limited. The term “coupled” is used twice in the detailed description of the ’340 patent invention. In the first, the portion of the



specification referring to Figure 1 discloses sensing transformers **L1** and **L2** “coupled to detector **U1**.” '340 Patent 3:54-56. Turning to Figure 1, it appears that while one side of each of the transformers **L2** and **L2** is directly connected to the detector **U1**, without intervening components, the second side is not, there instead being a series of resistors and capacitors configured between the two, suggesting an indirect connection.

The term appears once again further on in the '340 patent specification, which discloses a low pass filter which includes a capacitor **C8** “coupled in series with solenoid **110**.” '340 Patent 6:22-26. As can be

seen, however, Figure 1 reflects that the connection between capacitor **C8** and solenoid **110** is not direct, there being an intervening resistor **R4** positioned between the two.

In at least one of the patents now in suit the inventors have specified that a related term, “connected”, is “to be construed as partly or wholly contained within, attached to, or joined together, even if there is something intervening.” '973 Patent 7:11-13. Unfortunately, the patents now in suit do not obtain a similar clarifying instruction regarding the intended meaning of the term “coupled”. This recited definition, contained in a related patent, lends support to P&S’s contention that the term “coupled” was intended by the applicants as encompassing more than mere direct attainment, as Hubbell would argue. See *Silicon Graphics, Inc.*, 58 F. Supp.2d at 345-46.

Having carefully considered the arguments of the parties, I recommend acceptance of the P&S proposed definition of the claim term in dispute to include “the portion of a circuit electrically connected, either directly or indirectly, between the hot and neutral line terminals.”²⁰

²⁰ Hubbell contends that during the patent prosecution process leading to issuance of the '340 patent, the inventors relinquished a portion of claim 14, as initially drafted, eliminating “coupled to the line terminals and/or the load terminals, the at least one detection circuit being” and instead adding “including a circuit segment coupled

b) “configured to generate a predetermined signal in response to detecting a proper wiring condition, the predetermined signal not simulating a fault condition, a proper wiring condition being effected when the line terminals are connected to a source of AC power”

At the heart of the controversy over this term is disagreement over the meaning of “detecting” and of a “predetermined signal”.

i) “predetermined signal”

On its face, the term “predetermined signal” does not seem to be particularly controversial. In other settings, courts have construed the term “predetermined” as meaning determined, or decided, beforehand. See, e.g. *Ferguson Beauregard/Logic Controls v. Mega Sys., LLC*, 350 F.3d 1327, 1340 (Fed. Cir. 2003); *Thomson Consumer Electronics, Inc. v. Innovatron, S.A.*, 43 F. Supp.2d 26, 37-38 (D.D.C. 1999).

Unabashedly, Hubbell proposes a definition for “predetermined signal”, which seemingly contradicts the very claim language being

between the line terminals”, in order to distinguish prior art, and that in doing so consciously narrowed their use of the term. Hubbell Claim Construction Reply Brief (Dkt. No. 49) at p. 58. While it is true that prosecution history estoppel can be invoked against an inventor to narrow a claim construction, such a measure is appropriate only when the patentee has clearly and unequivocally surrendered a portion of what would otherwise be encompassed within his, her or its claim. *Cordis Corp. v. Medtronic Ave., Inc.*, 511 F.3d 1157, 1176 (Fed. Cir. 2008). In this instance, I am unable to discern such a clear and unequivocal relinquishment of the portion of the customary definition of “coupled” which can include an indirect connection.

construed, arguing that it should be deemed to mean “a differential in current between the Hot and Neutral line terminals.” That definition, which implies the existence of a simulated ground fault, is directly at odds with the requirement that the predetermined signal *not* be simulating a fault condition. See '340 Patent 10:9-15. Additionally, the definition now proposed by Hubbell would require that the simulated fault condition be passed through a transformer, despite the fact that nowhere does the '340 patent contain any such requirement.

After having considered the arguments offered, I recommend that the court reject Hubbell's unsupported proposed construction and, adopting the meaning ordinarily attributed to the word “predetermined”, construe the term “predetermined signal” to mean “a signal set in advance of device installation that does not simulate a fault condition.”

ii) “detect”

While the parties differ over the term, “detect” appears to describe a concept which is both sufficiently precise and susceptible of being readily understood by those of ordinary skill in the art, such as not to require further amplification. The function of the claim construction exercise is to more precisely define patent terms which may be vague, ambiguous, or

not readily understood by those skilled in the art. See *Messagephone, Inc. v. SUI Systems, Inc.*, 243 F.3d 556 (Fed. Cir. 2000). To exchange the term “detect” for the alternatives now offered by Hubbell, requiring “perception”, “discovery” or “determining” does nothing to provide the added clarity anticipated to result from the construction process. *02 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., Ltd.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008).

In the ITC proceeding, Dr. Thomas Harman testified to his opinion that when utilized in the context now presented, the term detection is understood to mean the way in which a circuit reacts to a particular stimulus. Nocilly Decl. (Dkt. No. 41-2) Exh. Z-3 at pp. 1036-1040. In this instance, the reaction is the providing of a predetermined signal, and the stimulus is the determination that the device is properly wired. This is consistent with the commonly understood meaning of the term as determining the existence of a particular constituent or circumstance. See, e.g., *Transonic Systems, Inc. v. Non-Invasive Medical Technologies Corp.*, 2003 WL 22017533 at * 16 75 Fed. Appx. 765 (Fed. Cir. Aug. 26, 2003) (cited in accordance with Fed. R. App. Proc. 32.1).

Based upon the foregoing, I recommend that the disputed phrase be

construed as meaning “configured to generate a signal set in advance of device installation, which signal does not simulate a fault condition, when the device detects a proper wiring condition, meaning that the line terminals are connected to a source of AC power.”

c) “four sets of interrupting contacts”

This term, which is also found in claim 14 of the '340 patent, does not appear to be overly controversial. Both parties seemingly agree that this portion of the claim 14 refers to electrical contacts that can separate from each other in order to interrupt the flow of electricity.

One potential area of disagreement surrounds the total number of contacts specified. In its opening brief, P&S objects to Hubbell's attempt to quantify the number of contacts at four pairs, or eight separate contacts. See P&S Opening Claim Construction Brief (Dkt. No. 44) at pp. 54-55. From the joint claim construction chart submitted to the court, however, it now appears that P&S acknowledges that the claim specifies four pairs of electrical contacts. In light of parties' apparent agreement, I recommend that this term be construed as meaning “four pairs of electrical contacts that can separate from each other to interrupt the flow

of electricity".²¹

d) "wiring state detection circuit"

From plaintiff's initial brief I inferred that the parties were at least slightly at odds over this term, found in claim 18 in the '340 patent.²² See P&S Opening Claim Construction Brief (Dkt. No. 44) at p. 58. It now appears, however, that Hubbell is essentially in agreement with plaintiff's proposed construction, and does not now advocate the substitution of "active perception" to replace the concept of "detection". Having reviewed the parties' most recent proposed constructions, which reflect only slight variations, I recommend that this term be construed to mean "a circuit that detects the presence of a proper wiring condition, wherein AC power is connected to the line terminals."

e) "configured to permanently open circuit a predetermined time after AC power is coupled to the line terminals"

This claim term, which appears in claim 19 of the '340 patent, is

²¹ In the ITC proceeding several of the respondents attempted to limit this term to buss bars with contacts mounted on them. See Nocilly Decl. (Dkt. No. 41-2) Exh. W at pp. 88-89. That position was rejected in light of the lack of indication from the intrinsic evidence that the inventors intended to place this limitation upon the otherwise broader language and require that the contacts be located on a buss bar. *Id.*

²² This term also appears in claim 1 of the '386 patent.

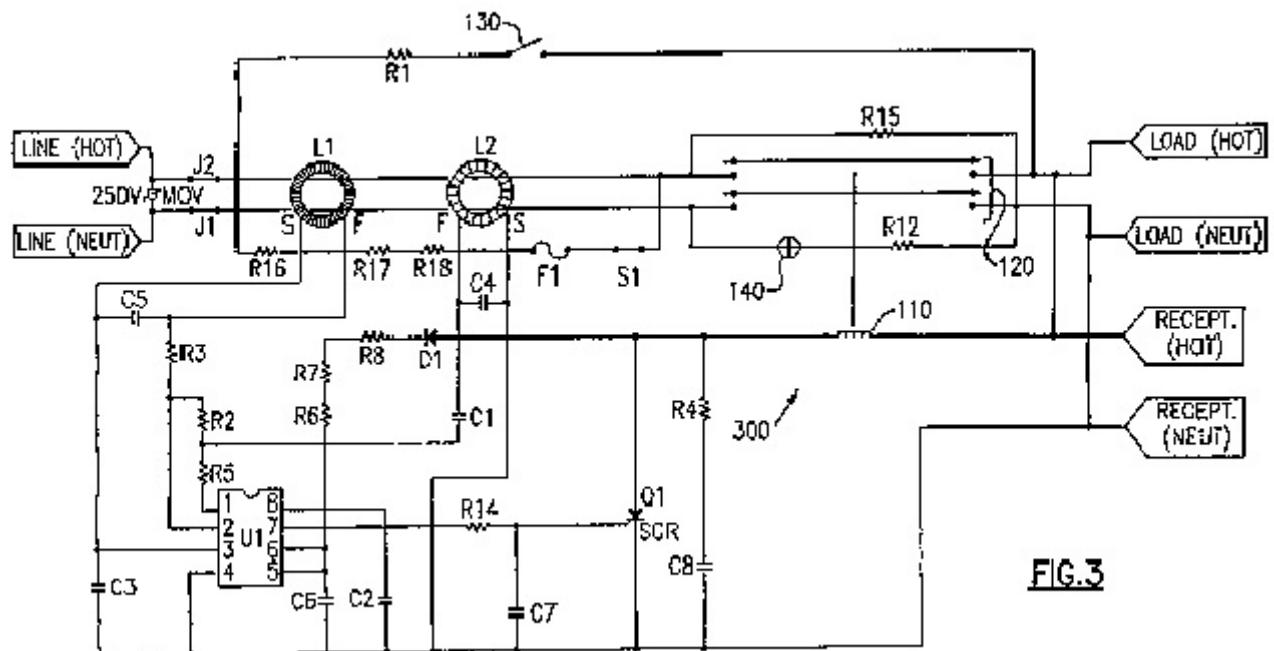
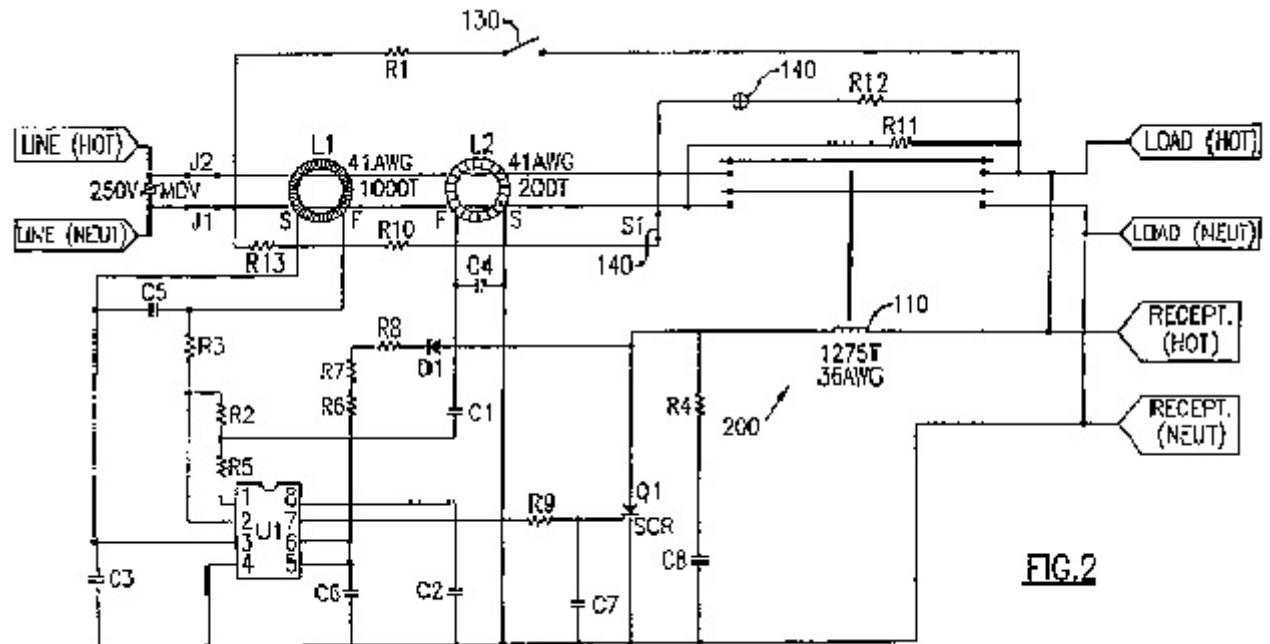
hotly contested.²³ At issue with regard to this term is the degree of permanency required in connection with the open circuit specified.²⁴ Hubbell proposes that the term be equated to irreversibility. P&S, on the other hand, proposes that the term be read to suggest that the circuit remain open during the period of normal intended use of the device.²⁵

Claim 19 interjects a concept of permanency to the open circuit status created upon detection of miswiring, and appears to correspond to embodiments described and depicted in figures 2 and 3 of the '340 patent. See '340 Patent 6:33-58.

²³ In their briefs, the parties had requested that the court construe the term "the interrupting contact assembly being substantially prevented from effecting the reset state absent the predetermined signal being generated by the at least one detection circuit", found in claim 14 of the '340 patent. That request, however, has since been jointly withdrawn by the parties.

²⁴ The court has already addressed the concept of predetermination. See pp. 59-60, *ante*.

²⁵ Hubbell also proposes to substitute the word "arranged" for the term "configured". Since the intrinsic evidence now before the court suggests no reason for the desired substitution, and in my view adoption of Hubbell's position would represent mere exercise in word substitution, without enhancing specificity, an exercise not favored by the courts, see, e.g., *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d at 1554, 1567-68 (Fed. Cir.) cert. denied, 522 U.S. 950, 118 S.Ct. 369 (1997), I decline the invitation to recommend that substitution.



That claim essentially provides for a lock-out condition in the event of miswiring, and is therefore distinguishable from embodiments associated with various other '340 patent claims, which disclose the ability to reset the device following a miswire signal.

As P&S argues, the concept of permanence is contextual. The Federal Circuit has acknowledged as much, including in a case from the ITC in which a claim construction similar to that now espoused by P&S was approved. See *Intel Corp. v. U.S. Int'l Trade Comm'n*, 946 F.2d 821, 835-36 (Fed. Cir. 1991) (approving construction of the phrase "permanently programmed" to mean "for the useful life of the [computer

device] part under normal operating conditions.”)

The concept of irreversibility now espoused by Hubbell, while closely associated with permanency, adds an additional element that is not warranted under the terms of the patent and patent prosecution. Although it is not necessarily anticipated or intended, it is virtually always possible to reverse the circumstances described in claim 19 and essentially repair a GFCI device to again operate properly after detection of a miswiring condition. Such a possibility is inconsistent with the notion of irreversibility. As P&S argues, for example, in the event that the SCR reflected in Figure 2, or the fuse in Figure 3, were to burn out as a result of a miswiring event, in theory at least the device could be opened and the shorted component replaced.

In light of this reality, I recommend that Hubbell’s argument that permanent should be equated with irreversible be rejected, and that instead the disputed term be construed as “configured to open the circuit an amount of time after AC power is connected to the line terminals, which amount of time is set in advance of device installation, in a manner in such that it is not closed again in the normal intended use of the device.”

f) “configured to generate a fault detection signal in response to detecting at least one fault condition”

This disputed claim term is implicated in claim 21 of the '340 patent as well as claim 24, which is dependent upon claim 21. The term is also included in claim 1 of the '386 patent which, as will be seen, is an outgrowth of the '340 patent and similarly designed to address the issue of miswiring.

When it comes to this disputed term, the parties are in agreement on one point; when the same claim limitation is contained in two related patents, it is presumed to carry the same meaning in each instance. See *Z4 Techs., Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1348 (Fed. Cir. 2007) ("[W]e presume, unless otherwise compelled, that the same claim term and the same patent or related patents carries the same construed meaning.") (quoting *Omega Eng'g v. Raytek Corp.*, 334 F.3d 1314, 1334 (Fed. Cir. 2003)). Because this term is more comprehensively discussed in the context of the related, '386 patent, I will address it more fully in the context of that patent and recommend a definition which would equally apply to claim 21 of the '340 patent.

3. The '386 Patent

The '386 patent, an outgrowth of the '340 patent, was issued on May 1, 2007 and is entitled "GFCI With Miswire Lockout." Among the

considerations leading to the '386 invention was the reality that advice to the user/homeowner to replace a GFCI device upon testing when the reset button fails to pop out is routinely ignored. '386 Patent 1:44-59. When a user follows instructions to regularly press the test button, thereby generating a simulated fault, but the reset button fails to pop out, at that point the device is not providing ground fault protection. Another condition addressed in this patent is the situation presented when, through miswiring, AC power is connected to load terminals since load terminals are typically connected to the user load terminals, or receptacles on the device, such that when the device trips the conductive path between the line terminals and load terminals may be interrupted, but the load terminals and user load terminals are still connected, thereby failing to protect the ultimate user.

These factors led the inventors to consider various modes of additional protection. '386 Patent 2:8-31. One approach contemplated was the use of a lock-out mechanism preventing resetting in the event of a line-load miswiring condition. Consideration was also given to use of a fused miswire circuit within the GFCI which, in response to a miswiring condition, would induce a current simulating a fault condition and thereby

trip the device. *Id.* The inventors concluded their description of the invention background by stating that “[w]hat is needed is a multi-shot method for testing miswiring. Further, a device is needed that eliminates any hazard at the receptacle outlets when the device is tripped.” *Id.*, 2:29-31.

Only claim 1 of the '386 patent is now at issue. That claim provides as follows:

1. An electrical wiring protection device comprising:
 - a housing assembly including at least one line terminal and at least one load terminal partially disposed thereof;
 - a first conductive path electrically coupled to at least one load terminal;
 - a second conductive path electrically coupled to at least one load terminal, the second conductive path, being connected to the first conductive path in a reset state;
 - A fault detection circuit coupled to the first conductive path, the fault detection circuit being configured to generate a fault detection signal in response to detecting at least one fault condition;
 - a wiring state detection circuit coupled to the first conductive path, the wiring state detection circuit selectively providing a wiring state detection signal when the at least one line terminal is coupled to a source of AC power;
 - an actuator assembly configured to provide an actuator signal in response to the fault detection signal or the wiring state

detection signal; and

a circuit interrupter coupled to the actuator assembly, the circuit interrupter being configured to disconnect the first conductive path from the second conductive path in response to the actuator signal in the reset state.

'386 Patent 14:43-67. The parties request construction of several terms contained within that claim; many of those requests, however, mirror those made in connection with respect to other, related patents.

- a) “configured to generate a fault detection signal in response to detecting at least one fault condition.”

The chief disagreement regarding this patent claim limitation appears to focus upon what is intended by use of the phrase “at least one fault condition”, or in other words, what precisely the fault detection circuit specified is intended to detect. The disagreement related to this and other similar claim terms found in related patents centers upon the definition of a “fault” or “fault condition”.

In its memoranda, Hubbell attempts to cabin that term to a condition where there exists a discrepancy between current flowing in the hot and neutral lines, pointing out that every “fault condition” disclosed in the specifications of the various related patents, including '340, '398, '718, '564 and '386, requires a differential in current between the hot and

neutral lines. Hubbell also contends that a person of ordinary skill in the art would know that the term “fault detection circuit” refers to one or more well-known, commercially available integrated circuit (“IC”) devices, commonly utilized in GFCIs broadly marketed, including the RV 4145A available from Fairchild Semiconductor, located in San Jose, California. According to information generated by Fairchild, the RV 4145A receives and senses inputs from the sense transformer and detects various types of faults including grounded hot line faults, known as ground faults and grounded neutral faults. See Hubbell Opening Claim Construction Brief (Dkt. No. 42) Exh. 11. In compliance with UL943 industry requirements, when the voltage differential between the hot and neutral lines exceeds five mA the SCR trigger output signal is activated and drives the SCR to draw current and open the latching contacts, thereby uncoupling AC power connected to the line terminals and preventing current from reaching the load terminals. As such, the argument goes, a person of ordinary skill in the art would understand that a “fault detection circuit” determines differences in current between the hot and neutral lines within a device.

While that all may be true, it does not necessarily exclude the

possibility of other fault conditions. The express language of the claim term now being construed is presented as being open ended, requiring a certain response to detecting “*at least one* fault condition.” '386 Patent 14:52-55 (emphasis added) *Z4 Technologies, Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1348-49 (Fed. Cir. 2007) (“[u]se of the phrase ‘at least one’ means that there could be only one or more than one . . .”’) (quoting *Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999)). It is thus clear that while the focus of the patent is upon ground faults, there is no reason to exclude other types of faults as falling within the contemplated scope of the patent. Indeed, the '386 patent specification makes this abundantly clear, noting that “the protective device **10** includes a protective circuit **402** that is configured to detect one or more fault conditions (arc fault, ground fault, etc.)”. '386 Patent 9:18-21.

Based upon the foregoing and the prior discussions regarding various other words and phrases contained within the term, I recommend that for purposes of both claim 1 of the '386 patent and claim 21 of the '340 patent, “the fault detection circuit being configured to generate a fault detection signal in response to detecting at least one fault condition” be construed to mean “a circuit configured to generate a particular signal

upon detecting at least one type of fault, such as a ground fault."

- b) "a wiring state detection circuit coupled to the first conductive path, the wiring state detection circuit selectively providing a wiring state detection signal when the at least one line terminal is coupled to a source of AC power"

The focus of the '386 patent is miswiring. Before examining this disputed claim term it bears noting the difference between proper wiring and miswiring. Proper wiring occurs when AC power is applied to the line side of a device. Nocilly Decl. (Dkt. No. 41-2) Exh. Z-3 at pp. 894-95. When AC power is applied to the load side, miswiring has occurred. *Id.* This distinction is highlighted when claims 1 and 34 of the '386 patent are contrasted.²⁶ Claim 34 describes a device configured to prevent operation in a reset state when at least one load conductor is coupled to AC power, presenting a miswiring situation. Claim 1, by contrast, addresses a proper wiring condition when at least one line terminal is coupled to a source of AC power. This contrast presents the type of intrinsic evidence analysis endorsed by the Federal Circuit in its decision in *Phillips*:

Other claims of the patent in question, both asserted and unasserted, can also be valuable sources in enlightenment as to the meaning of a claim term. Because claim terms are normally

²⁶

Claim 34 is an unasserted claim in this action.

used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims. Differences among claims can also be a useful guide in understanding the meaning of the particular claim terms.

Phillips, 415 F.3d at 1314 (citations omitted). It therefore appears that the construction proposed by P&S for the first portion of this claim term, one that is not seriously disputed by Hubbell, is proper, and that the term was intended by the patentee to mean “a circuit which is connected, directly or indirectly, to the first conductive path and which specifically detects wiring of AC power to the line terminals.”²⁷

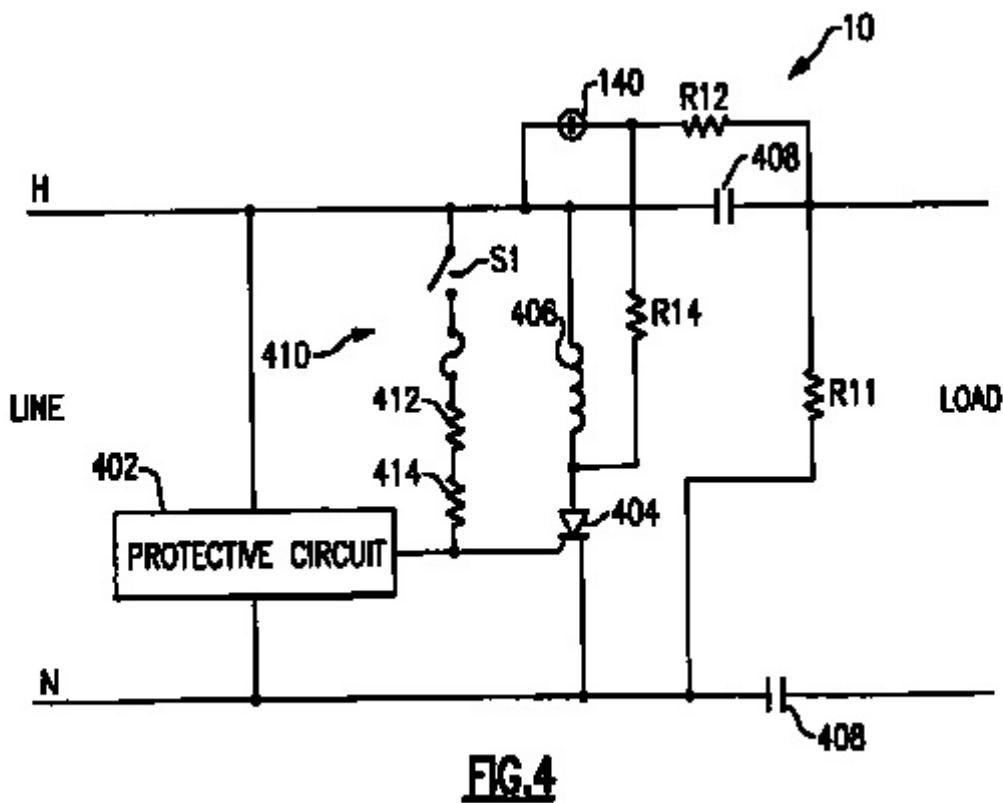
The more controversial portion of the term now under consideration is the last portion, calling for selective signaling to indicate proper wiring. When offering its proposed construction of this portion of the term, Hubbell attempted to interject the requirement of the application of a “user stimulus” to acquire a signal indicating a proper wiring condition.²⁸

There does not appear to be a proper basis on which to interject this

²⁷ The term “coupled” was addressed earlier in this report. See pp. 52-58, *ante*.

²⁸ While this additional element appears in the parties’ joint claim chart, it is uncertain whether Hubbell has abandoned this position since the disagreement over this term is not discussed in its responsive brief. See Hubbell Reply Claim Construction Brief (Dkt. No. 49) at p. 12.

additional required element into claim 1 of the '386 patent. While undeniably the embodiment shown in Figure 4 of the '386 patent, depicting the wiring state detection signal being generated upon depression of the reset button when properly wired, suggests such a limitation, see '386 Patent Fig. 4 and 12:42-52, other embodiments do not reflect a similar concept.



Indeed, in various other embodiments of the '386 patent, including those

revealed in the first three illustrated figures, the wiring state detection signal occurs upon proper wiring, regardless of whether the reset button is depressed, as is confirmed by the following excerpts from the patent specification:

Thus, a properly wired device **10** operates as follows. When electrical power is connected in a correct manner to **60** the line terminals, a differential current is created by the fault resistance **R10, R13** when power is applied to the device. If the device is reset before the power is applied, the device trips as a result of this differential current. *If the device is already in the tripped condition before power is applied, nothing visible happens.*

*However, because the fault resistor is on the line side of the interrupting contacts, **120**, current through fault resistance **R10, R13** continues to flow, regardless of interrupting contacts **120** being open.* This internal differential current, created by the fault resistance **R10, R13** clears itself in a short time, typically 300 ms Once the device has been properly wired and the fault has been cleared, the device can be reset and provide its normal protective functions.

'386 Patent 7:59-8:15 (emphasis added). Because nothing in the patent claim or patent specification supports the additional requirement of user stimulus, I have not included it within my recommended construction.

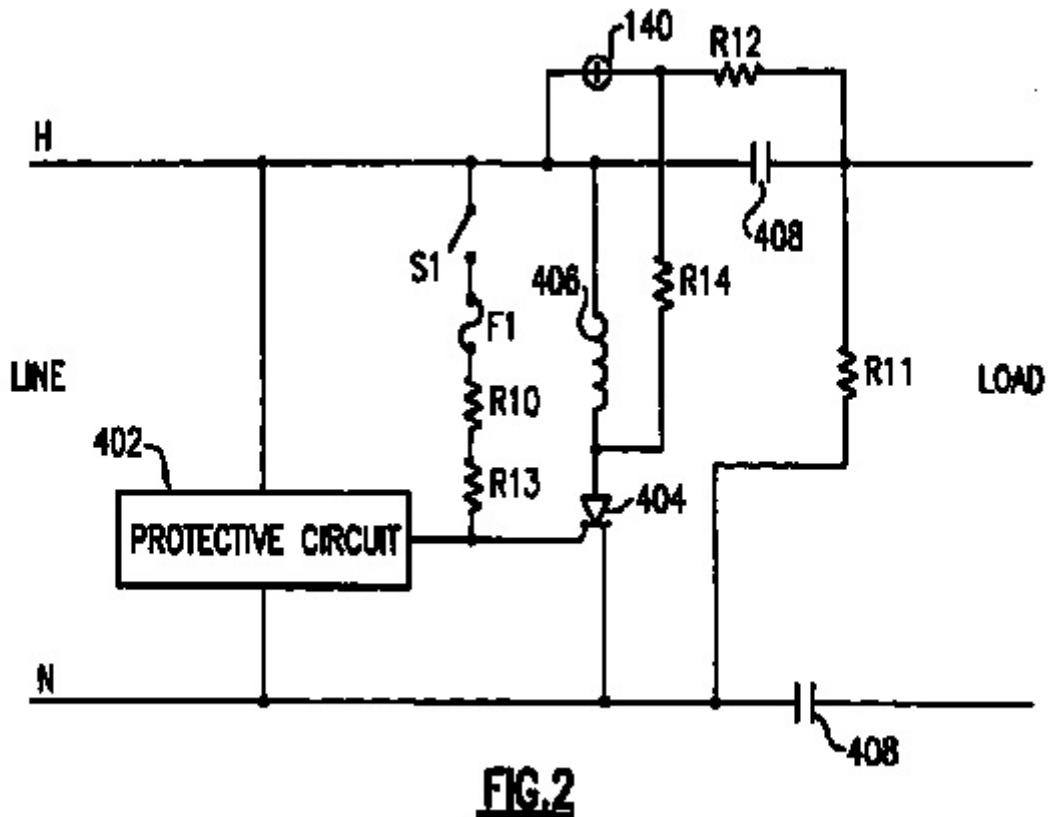
I therefore recommend that this disputed term be construed to mean "a circuit, which is connected directly or indirectly to the first

conductive path, that specifically detects wiring of AC power to the line terminals and selectively provides a signal specifically indicating proper wiring of the AC power to the line terminals when this proper wiring state is present."

- c) "provide an actuator signal in response to the fault detection signal or the wiring state detection signal"

The parties next request construction of this term, which is also included in claim 1 of the '386 patent.²⁹ On its face, this limitation appears to address what occurs within the device described in claim 1 upon receipt of a signal indicating detection of either a fault condition or proper wiring. When that occurs, the claim specifies that an "actuator signal" will be sent in response. Certain of the embodiments disclosed in the '386 patent disclose an actuator assembly comprised of an SCR and a solenoid designed to provide a signal, in the form a current flow that energizes a solenoid, in response to one of those signals. See '386 Patent. Fig. 2 and 9:20-25, 9:43-49.

²⁹ The parties have jointly withdrawn their request for construction of the term "configured to disconnect the first conductive path from the second conductive path in response to the actuator signal and the reset state", also found in claim 1 of the '386 patent.



Documents submitted during the prosecution of the '386 patent confirm this, describing a solenoid and an SCR identified in an allegedly infringing product as providing "an actuator signal in response to either a fault detection signal . . . or a wiring state detection signal from the wiring state detection circuit." See Nocilly Decl. (Dkt. No. 41-2) at Exh. H, PS-339166; see also Exh. Z-3 at pp. 903-906.

Statements submitted during the course of prosecution of the related '340 patent are also illuminating with respect to this issue, and are

permissibly considered when construing the patent term at issue. See *Ventana Med. Sys. Inc. Rv. Biogenex Labs, Inc.*, 473 F.3d 1173, 1184 (Fed. Cir. 2006) (“statements made during the continued prosecution of a sibling application may ‘inform the meaning of the claim language by demonstrating how the inventor understood the invention’” where relevant claims terms are involved) (citations omitted). When prosecuting the ’340 patent the inventors used the term “electric switch actuator” to distinguish a prior art circuit configured to provide an alarm signal, but not to actuate or drive any components. Nocilly Decl. (Dkt. No. 41-2) Exh. F at PS 414701.

From the foregoing, it appears that an important element of claim 1 of the ’386 patent was that the actuator assembly specified have the ability to initiate action on the part of one or more components of the device. Under these circumstances, I recommend that the disputed term be construed to mean to “respond to the signal indicating detection of a fault or the signal indicating detection of a proper wiring state by, in response to either one of those signals, providing a signal to initiate action on the part of one or more components of the device such as, for

example, a solenoid armature.”³⁰

4. The '564 Patent

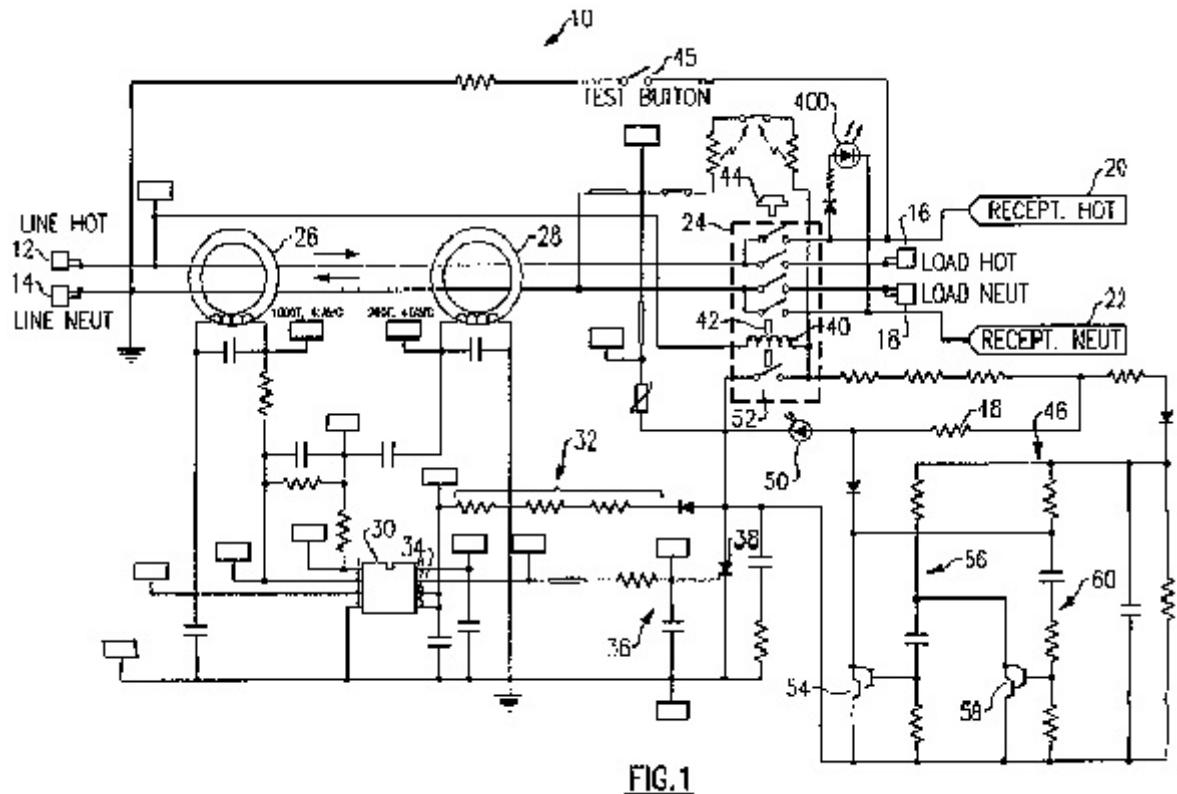
One potential pitfall associated with the use of GFCI devices historically was the lack of indication to the user that the device was no longer working, a circumstance sometimes referred to as “end of life.” When a GFCI has sensed a fault condition but is no longer operable, the device may continue to provide power to a load without tripping despite the fault condition or, alternatively, may continuously trip after being reset. The '564 patent, issued on January 16, 2007, discloses an invention designed to implement preventative safety measures when a GFCI device has reached the end of life state, including by denying power to the load circuit and providing a visual or audible indication signaling a failure. The intended objective of the invention is summarized as follows in the '564 patent specification:

The present invention is directed to a protective device that is configured to deny power to the load circuit when the device reaches end of life. The protective device of the present invention includes an indicator configured to emit a visual and/or audible indication when the device reaches end of life. Accordingly, the guess work associated with the trouble shooting process is eliminated.

³⁰ This construction was adopted by ALJ Charneski, and approved on review by the ITC. See Nocilly Decl. (Dkt. No. 41-2) Exh. W at p. 120; Exh. X at p. 15.

'564 Patent 3:31-37. As is evident from this specification excerpt, the function of the underlying patent invention is to protect a user from a fault condition when a device has failed in one of several designated ways, including "device circuitry failure, circuit interrupter failure, relay solenoid failure, and/or solenoid switching device failure." *Id.* 2:39-41.

One embodiment described in the '564 patent includes a light emitting diode ("LED") 50 or an audible indicator coupled to the SCR to signal a failure by either emitting a blinking visual signal or intermittently beeping. See '564 Patent, Fig. 1, 7:37-8:13.



In that configuration, when a specified parameter of the SCR changes, such as when the SCR impedance drops in response to a trip signal or the SCR fails, the visual or audible signal will be activated. *Id.* 7:49-8:13.

At issue in this action are claims 1, an independent claim, as well as dependent claims 2, 4, and 14 of the '564 patent. Those claims provide as follows:

1. A protective device comprising:
 - a plurality of line terminals and a plurality of load terminals;
 - a fault detection circuit coupled to the plurality of line terminals, the fault detection circuit being configured to provide a detection output signal in response to a detected condition;
 - a switching device coupled to the fault detection circuit, the switching device being configured to provide a trip signal in response to the detection output signal, the switching device being characterized by at least one device parameter;
 - a circuit interrupter assembly configured to electrically connect the plurality of line terminals and the plurality of load terminals in a reset state and disconnect the plurality of line terminals from the plurality of load terminals in response to the trip signal in a tripped state; and
 - an indicator circuit assembly coupled to the switching device, the indicator circuit assembly being configured to generate a user-perceivable output signal based on the at least one device parameter.
2. The device of claim 1, further comprising a protective circuit coupled to the switching device and the circuit interrupting assembly, the protective circuit being configured to de-

energize at least a portion of the circuit interrupting assembly in response to the trip signal.

* * *

4. The device of claim 1, wherein the indicator circuit assembly further comprises:

a monitoring circuit coupled to the switching device, the monitoring circuit being configured to monitor the at least one device parameter and provide an end-of-life signal on the basis of at least one device parameter; and

an indicator assembly coupled to the monitoring circuit, the indicator assembly including at least one indicator configured to generate the user-perceivable output signal in response to the end-of-life signal.

* * *

14. The device of claim 1, wherein the user-perceivable output signal is a periodic signal, the periodic signal being a blinking light if the indicator circuit assembly employs a visual indicator, or a beeping sound if the indicator circuit assembly employs an audible indicator.

'564 Patent 11:4-31, 11:34-44, 12:1-5.

- a) "a fault detection circuit"

This term is neither listed on the parties' joint construction statement nor addressed directly in Hubbell's briefings. It is, however, referenced in Hubbell's claim chart as being at issue in connection with the '386, '716, '340 and '564 patents. See Dkt. No. 49-5 at p. 1. In that chart, Hubbell makes the same argument that was advanced in connection with the '386

patent, in an attempt to narrowly confine the type of fault referenced to only a ground fault, characterized by a difference in current between the hot and neutral lines of a device. *Id.*

I have already rejected this unduly limiting approach in the context of the '386 patent as unsupported by the relevant intrinsic evidence. Since the same claim terms should be interpreted in the same manner in related patents, absent persuasive evidence to the contrary, the same construction should be adopted in this instance. See *Z4 Technology, Inc.*, 507 F.3d at 1348. Accordingly, I recommend that the term "a fault detection circuit" be construed in connection with the '564 patent to mean "a circuit that will provide a signal upon detection of a fault."

- b) "the switching device being characterized by at least one device parameter"

Hubbell's position regarding this term has been somewhat schizophrenic. In a claim chart appended to its claim construction reply brief Hubbell has proposed limiting the term to refer to an impedance value. See Dkt. No. 49-5 at p. 5. This proposed narrow construction was also initially proposed in Hubbell's opening brief, though the defendant quickly retreated, later on recognizing the expansive effects of the "at least one" language. See Hubbell Opening Claim Construction Brief (Dkt.

No. 42) at pp. 62-64. The more narrow definition proposed by Hubbell is also carried through to the parties' joint claim construction chart. See Dkt. No. 52 at p. 9. Yet, despite an earlier ambiguity, it appears that Hubbell has retreated from its initial position, and now acknowledges that there does not appear to be any disagreement between the parties or with this term. Hubbell Reply Construction Brief (Dkt. No. 49) at p. 36.

The term now under consideration is, on its face, open ended, and posits impedance as but one example. This disputed claim term is discussed in the '564 patent specification which reads, in relevant part, as follows:

When end of life occurs in detector **30** or in SCR **38** itself, SCR **38** is permanently ON, i.e., it is shorted. Those of ordinary skill in the art will recognize that a shorted condition represents a noticeable drop in the impedance value. Thus, the series pass resistance of power supply **32** is shunted by SCR **38**. Accordingly, the voltage drop across resistor **48** increases such that transistor **54** begins to conduct. However, timing circuit **56** causes transistor **54** to conduct only for a predetermined time interval. When transistor **54** turns OFF, transistor **58** is biased to turn ON for a predetermined interval established by timing circuit **60**. After which, the cycle repeats itself and transistor **54** is biased once again to turn ON. The cycling of transistor **54** causes to emit a cycling on-off indicator signal. If indicator **50** is an audible indicator, a beeping sound is emitted. If indicator

50 is a visual indicator, a blinking light is emitted. *The device impedance is only one device parameter that the present invention may be configured to monitor to detect an end-of-life condition.* For example, the monitoring circuit employed by the present invention may also monitor the duration of the trip signal. If the trip signal is ON for an extended duration, this is another indication that the switching device has reached end of life.

'564 Patent 7:58-8:13 (emphasis added). As can be seen, while impedance is undeniably a parameter that one may associate with an end-of-life condition, it is not the sole potential indicator.

To limit the device parameter referenced in this disputed claim term to impedance, as Hubbell appears to have once suggested, would be to disregard the portion of the specification which clearly reflects that impedance is but one of the parameters contemplated in the term, and thus the construction proposed by Hubbell cannot be a correct one.

Phillips, 415 F.3d at 1312 (“Because the patentee is required to ‘define precisely what his invention is’. . . it is unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain impact of its terms.”) (quoting *White v. Dunbar*, 119 U.S. 47, 52, 7 S.Ct. 72 (1886)). Accordingly, I recommend that the claim term be construed to mean “a device that 1) acts as a switch, and 2) has at least one defining

characteristic, such as, by way of example, impedance.”³¹

- c) “to monitor the at least one device parameter and provide an end-of-life signal on the basis of the at least one device parameter”

The next disputed term, found in claim 4 of the ’564 patent, does not appear to be particularly controversial. Although P&S advocates substitution of “to check” for “to monitor”, there is no indication in the record now before the court that one of ordinary skill in the art would not understand the term “monitor”, as utilized in the ’564 patent, differently than as customarily used. Accordingly, there does not appear to be any useful purpose to be served in substituting such synonyms as “watch” “keep track of” or “check” for that well-understood term. See *02 Micro Int'l Ltd.*, 521 F.3d at 1362.

The claim term now under construction is described in the patent specification, including in the previously cited portions. That specification reveals that the monitoring circuit may determine when the impedance of the device’s SCR has dropped, indicating that it is permanently on, or shorted, or provides a trip signal for a particular duration, and that in such

³¹ This same “one device parameter” also appears in the disputed term “generate a user-perceivable output signal based on the at least one device parameter”, and for purposes of that term should be similarly construed.

circumstances a visual or audible indicator can signal such a state. '564 Patent 7:58-8:13. Accordingly, I recommend a construction of this term to mean "to monitor the one device parameter of the switching device and provide a visual or audible signal if the switching device is determined to have reached its end-of-life."

5. The '973 and '938 Patents

The '973 patent, entitled "Miswire Protection Switch Compression Spring" and issued on August 14, 2007, is addressed to the need for miswiring testing under circumstances in which industry standards, which preclude a device from being reopened after testing, can be met. '973 Patent, 1:23-3:34. By making the device user-accessible without compromising the housing the manufacturer of a GFCI device can open the switch on a second detection circuit, which could be designed to determine whether the device has been properly wired, during testing, without fear of harming the second detection circuit through the testing process, allowing for the device to then be enabled for use by the consumer by closing the switch after testing has been completed without requiring that the housing be opened. *Id.* at 4:7-15, 5:38-62 and 6:11-64. The '938 patent, issued on May 20, 2008, is a continuation of the '973

patent and contains a similar specification, though with somewhat different claims.

At issue in connection with the '973 patent is claim 1, the only independent claim asserted, as well as dependent claims 4, 6 and 7. The only disputed claim terms in the '973 patent, however, appear in independent claim 1, which provides as follows:

A ground fault circuit interrupt (GFCI) device, comprising:

- a GFCI device housing;
- a plurality of line terminals and a plurality of load terminals at least partially disposed in the GFCI device housing;
- a GFCI circuit enclosed within GFCI device housing and coupled to the plurality of line terminals and the plurality of load terminals, the GFCI circuit being configured to detect at least one ground fault condition;
- a second detection circuit coupled to the GFCI circuit and enclosed within the GFCI device housing, the second detection circuit including a switch element set in an open position prior to being enclosed within the GFCI device housing, the switch element remaining in the open position during at least one post-manufacture test procedure to thereby disarm the second detection circuit during the at least one post-manufacture test procedure; and
- a user-accessible housing feature disposed on the GFCI device housing, the user-accessible housing feature being in communication with the switch element, an externally generated stimulus being applied to the switch element to throw the switch element into a closed position by way of the

user-accessible housing feature to enable the second detection circuit after the at least one post-manufacture test procedure is completed.

'973 Patent 7:43 – 8:3.

Prior to briefing in connection with the claim construction exercise it appeared that there was disagreement between the parties over certain terms set forth in claim 1 of the '973 patent, including “a GFCI circuit . . . coupled to the plurality of line terminals and the plurality of load terminals, the GFCI circuit being configured to detect at least one ground fault condition”, “a second detection circuit coupled to the GFCI circuit” and, “a switch element . . . to thereby disarm the second detection circuit.” While in its opening claim construction brief P&S addressed those terms, Hubbell did not, and they are not included within the claim construction chart now before the court and serving as a guide to the construction process. I interpret those omissions as Hubbell’s abandonment of any challenge of the proposed constructions offered by P&S regarding those terms, and therefore recommend that the following meanings, as proposed by P&S, be adopted:

<u>Term</u>	
“a GFCI circuit . . . coupled to the plurality of line terminals and the plurality of load terminals, the GFCI circuit being	a circuit that is connected, directly or indirectly, to the line and load terminals and that can detect a

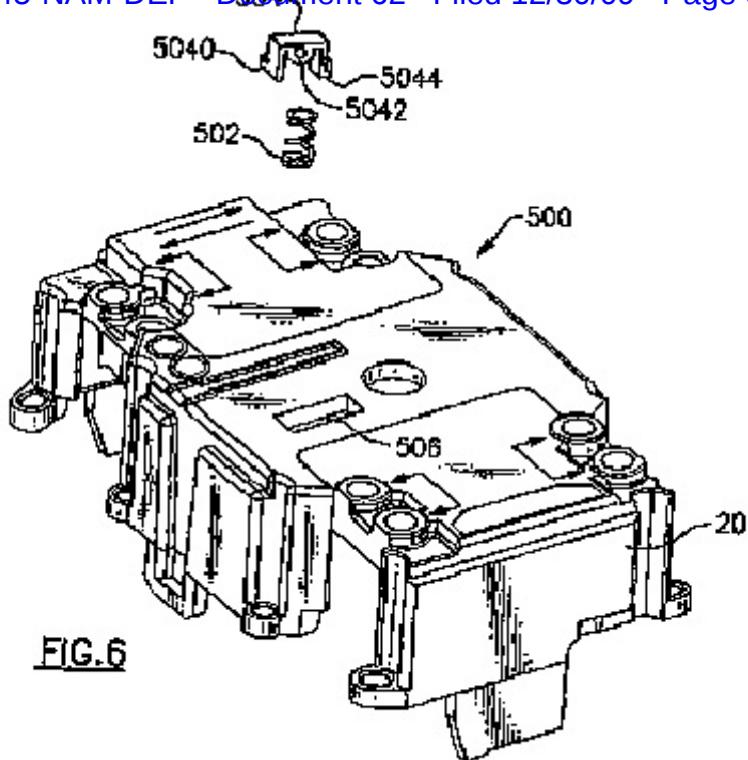
configured to detect at least one ground fault condition”	ground fault.
“a second detection circuit coupled to the GFCI circuit”	a circuit different from the GFCI circuit and that is connected, directly or indirectly, to the GFCI circuit
“a switch element . . . to thereby disarm the second detection circuit”	a switch that may be opened to disable the second detection circuit

Pass & Seymour Opening Claim Construction Brief (Dkt. No. 44) at pp. 81-82.

a) “a user-accessible housing feature disposed on the GFCI device housing, the user-accessible housing feature being in communication with the switch element. . .”

The controversy surrounding this term and a related concept appearing in the off-spring, '938 patent, centers upon two issues. The first concerns whether this term discloses a housing feature comprised of a physical object located on but distinct from the GFCI housing, or instead could include an opening or a hole in the housing, a dispute which was also the subject of debate in the earlier ITC proceeding. The second focuses upon what is meant by the phrase “in communication with.”

Undeniably, Figure 6 of the '973 patent discloses an embodiment which includes a hole, or opening, in the GFCI housing.



Addressing Figure 6, the patent specification notes that the housing feature includes an opening 506 through which force carried by the plug **504** and spring **502** can be transferred, causing the internal switch **S1** to close. See '973 Patent 6:33-49.

That the user-accessible housing feature specified in claim 1 can be a hole, or opening, P&S argues, is further buttressed through consideration of claim 13, which is dependent on claim 1 and discloses "the user-accessible housing feature further comprises: an actuation plug inserted into an opening in the GFCI device housing; and a spring element. . ." '973 Patent 8:50-54. According to P&S, it follows that the

device specified in claim 1 must be amenable to accommodating an opening in the housing.³² See *Curtis-Right Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380-81 (Fed. Cir. 2006) (addressing the doctrine of claim differentiation).

As was noted, the second area of disagreement concerns the “in communication” feature, requiring the user-accessible housing feature to be in communication with the switch element. This element of claim 1 is directly relevant to the debate concerning the housing feature. Hubbell argues that the user-accessible housing feature specified must “directly or indirectly” touch the switch element. P&S counters that the term “in communication” is sufficiently precise and does not require further definition, including to specify physical touching. Regardless of which position is adopted, the question becomes whether a hole, as the user-accessible housing feature, can be in communication with a switch.

The argument now being made by P&S was accepted by ALJ Charneski in his decision, but subsequently rejected by the Commission. For the same reasons cited by the Commission I similarly recommend

³² In its brief, P&S refers to claim 12 in making its claim differentiation argument. See, e.g., P&S Opening Claim Construction Brief (Dkt. No. 44) at p. 83. From the context, however, it is apparent that that reliance was intended to be focused on claim 13, a dependent claim containing the additional elements relied upon by P&S.

against adoption of the position of P&S, to the effect that the “user” accessible housing feature” can constitute a hole. Unquestionably, a hole can constitute a structure affirmatively recited in a claim. See *TriMed, Inc. v. Stryker*, 514 F.3d 1256, 1260 (Fed. Cir.), *cert. denied*, 129 S.Ct. 144 (2008). In this case, however, the claim also requires that the housing feature be in communication with the switching element. It is difficult to understand how a hole can be in communication with a switch element, as opposed to permitting such communication by allowing for the insertion of a pin or similar device to close the switch.

The user-accessible housing feature specified, then, must be something different than a housing opening. On close examination, the doctrine of claim differentiation does not require a contrary holding. Dependent claim 13 limits itself to a device specified in claim 1 where the user-accessible housing feature further includes an activation plug and a spring element, similar to that embodied in Figure 6 of the '973 patent. That claim, however, does not necessarily require that the user accessible device in claim 1 must specify a hole, but instead speaks generally to a user-accessible housing feature, with claim 13 specifying but one potential configuration for such a feature.

While accepting Hubbell's position regarding the housing feature, I nonetheless find P&S's opposition to Hubbell's proposed direct or indirect physical touching requirement to be well taken. As commonly understood, the term "in communication" can mean a variety of things that could include direct or indirect physical touching. See, e.g., *Panduit Corp. v. Hellermannityon Corp.*, 451 F.3d 819, 820 (Fed. Cir. 2006) (where claim described "an opening formed in the abutment portion of the projection with an aperture formed in a side wall," "in communication" construed to "simply require a passage through which wires may be routed.") There is nothing in the '973 patent specification requiring that the user-accessible housing feature physically touch the switch element. While being in communication with a switch element could be accomplished through physical touching, there could also be intervening components to assist in the communication between the housing feature and switch element. I therefore recommend that the claim language in issue be construed to mean as "a physical object accessible to a user, located on but physically distinct from the GFCI housing, where the physical object physically touches or is otherwise in communication with the switch element that allows an outside force to close the switch when testing is complete."

Similar, disputed claim language is included in the '938 patent. That patent, entitled "Miswire Protection Switch Compression Spring", was issued on May 20, 2008. Claim 1 of the '938 patent provides as follows:

1. A ground fault circuit interrupt (GFCI) device, comprising:
 - a GFCI device housing;
 - a plurality of line terminals and a plurality of load terminals at least partially disposed in the GFCI device housing;
 - a GFCI circuit enclosed within GFCI device housing and coupled to the plurality of line terminals and the plurality of load terminals, the GFCI circuit being configured to detect a predetermined condition, the predetermined condition including at least one ground fault condition and a simulated fault condition;
 - a test circuit coupled between at least one of the plurality of line terminals and at least one of the plurality of load terminals, the test circuit including a test button configured to generate the simulated fault condition when the test button is depressed and the device is wired to a source of AC power;
 - a second detection circuit coupled to the GFCI circuit and disposed within the GFCI device housing, the second detection circuit including a switch element configured to be in a first position during at least one post-manufacture test procedure to thereby disarm the second detection circuit during the at least one post-manufacture test procedure; and
 - an accessible housing feature disposed on the GFCI device housing, an external stimulus being applied via the accessible housing feature to thereby throw the switch element into a second position to thereby enable the second detection circuit after the at least one post-manufacture test procedure is

completed.

'938 Patent 7:45-8:08.

The parties have requested construction of the term “an accessible housing feature disposed on the GFCI device housing an external stimulus being applied via the accessible housing feature to thereby throw the switch element into a second position to thereby enable the second detection circuit.” For the reasons set forth above with regard to the '973 patent, I recommend a similar construction of the disputed term to mean “a physical object, accessible to a user, located on but physically distinct from the GFCI housing, wherein the physical object physically touches or is otherwise in communication with the switch element.”

As was the case with regard to the '973 patent, in its briefing P&S initially proposed construction of additional terms within the '938 patent, including “the GFCI circuit being configured to detect a predetermined condition, the predetermined condition including at least one ground fault condition and a simulated fault condition”, “a test button configured to generate the simulated fault condition when the test button is depressed”, “a second detection circuit coupled to the GFCI circuit”, “a switch element . . . to thereby disarm the second detection circuit” and “to thereby enable

the second detection circuit", as well as portions of dependent claims three and five. Those additional claim terms, however, do not appear any longer to be in dispute or, in some cases, were previously addressed in the context of other of one or more of the ten patents in suit.

7. The '718 Patent

United States Patent No. 7,154,718 (the "718 patent") was issued on December 26, 2006 and is entitled "Protection Device with Power to Receptacle Cut-off." The objective of the invention embodied in the '718 patent is to deny power to a GFCI receptacle in the event of miswiring, where a power source is mistakenly attached to load terminals, or in the event of end of life failure. '718 Patent 1:11-3:26.

Although various prior art GFCI devices were calculated to deny current to downstream loads when tripped, the receptacles on the GFCI itself were typically hardwired to the line side of the device so that they would continue to provide current to any cord-connected device even in the event of detection of a fault or miswiring. The invention embodied in the '718 patent is designed to rectify that shortcoming by also denying power to the GFCI receptacles in the event of miswiring or a device failure. *Id.* This is accomplished by the use of a four-pole contact

assembly designed to interrupt electrical current between line terminals, load terminals and user-accessible load terminals, combined with a reset mechanism to permit reactivation of electrical continuity between line terminals, load terminals and user accessible terminals. See '718 Patent Abstract. The problems experienced with respect to prior art and leading to the invention are described in the '718 patent specification as including the following:

In particular, a miswire condition exists when the power lines and the [sic] are connected to the hot output terminal and the neutral output terminal, respectively. For 120 VAC distribution systems, the hot power line and the neutral power line are configured to be connected to the hot terminal and the neutral line terminal, respectively. If the electrical distribution system includes load wires, the miswire is completed by connecting the load wires to the line terminals. A miswire condition may represent a hazard when a cord connected load is plugged into a user accessible receptacle included in the device. Even if the circuit is interrupted in response to a true or simulated fault condition, AC power is present at the terminals of the receptacle because the feed-thru terminals and the receptacle terminals are hard-wired. Thus, the user is not protected if there is a fault condition in the cord-connected load.

Besides miswiring, failure of the device to interrupt a true fault condition or simulated fault condition may be due to the device having an internal fault condition, also known as an end of life condition. The device includes electro-mechanical components that are subject to reaching end of life, including electronic components can open circuit or short circuit, and mechanical components such as the contacts of the circuit interrupter that can become immobile due to welding, and the like.

In one approach that has been considered, the protective device is configured to trip in response to a miswire condition. Thus, if the power source of the electrical distribution system is connected to the load terminals (i.e., a line-load miswire condition), the circuit interrupting contacts will break electrical connection. The installer is made aware of the miswired condition when he discovers that power is not available to the downstream receptacles coupled to the miswired receptacle. After the miswiring condition is remedied, the interrupting contacts in the device can be reset. One drawback to this approach becomes evident when the protective device is not coupled to any downstream receptacles. In this scenario, the installer may not become aware of the miswire condition.

Accordingly, there is a need to deny power to the user accessible receptacles when the device is tripped. This safety feature is especially needed when the GFCI is miswired.

'718 Patent 2:53-3:26.

Among the '718 patent claims at issue in this case is claim 52, a dependent claim, which specifies the following:

52. An electrical wiring protection device comprising: a housing assembly including at least one user-accessible receptacle, the at least one user-accessible receptacle being configured to receive plug contact blades inserted therein, a neutral line terminal, a hot load terminal, and a neutral load terminal;

at least one set of receptacle contacts disposed in the housing assembly and in communication with the at least one user-accessible receptacle, the at least one set of receptacle contacts including a hot user-accessible load terminal and a neutral accessible load terminal;

a fault detection circuit coupled to the test assembly, the fault detection circuit being configured to detect at least one fault condition and provide a fault detect signal in response thereto, the at

least one fault condition including the simulated fault condition; and a four-pole interrupting contact assembly coupled to the fault detection circuit, the four-pole interrupting contacts including,

a hot cantilever assembly including a hot line cantilever connected to the hot line terminal and including a first hot contact disposed thereon, a fixed second hot contact coupled to the hot user-accessible load terminal, and a hot load cantilever connected to the hot load terminal and including a third hot contact disposed thereon, the first hot contact, the second hot contact, and the third hot contact being aligned and configured to provide electrical continuity between the hot line terminal, the hot load terminal, and the hot user-accessible load terminal in a coupled state and cause electrical discontinuity between the hot line terminal, the hot load terminal, and the hot user-accessible load terminal in a tripped state, and

a neutral cantilever assembly including a neutral line cantilever connected to the neutral line terminal and including a first neutral contact disposed thereon, a fixed second neutral contact coupled to the neutral user-accessible load terminal, and a neutral load cantilever connected to the neutral load terminal and including a third neutral contact disposed thereon, the first neutral contact, the second neutral contact, and the third neutral contact being aligned and configured to provide electrical continuity between the neutral line terminal, the neutral load terminal, and the neutral user-accessible load terminal in a coupled state and cause electrical discontinuity between the neutral line terminal, the neutral load terminal, and the neutral user-accessible load terminal in a tripped state.

'718 Patent 28:65-30:3.

a) "four-pole interrupting contact assembly"

The first dispute related to the '718 patent surrounds construction of the term "four-pole interrupting contact assembly", and specifically whether the assembly specified is limited to four pairs of electrical contacts, or a total of eight, as Hubbell asserts, or instead is not so limited, the position taken by P&S. This issue was not directly addressed during the course of the ITC proceedings.

In support of their respective positions, both sides cite the following patent specification excerpt:

A set of four-pole interrupting contacts include a first pair of hot contacts coupling the hot line terminal and the hot load terminal, a second pair of hot contacts coupling the hot line terminal to the hot user-accessible load contact, a first pair of neutral contacts coupling the neutral line terminal and the neutral load terminal, and a second pair of neutral contacts coupling the neutral line terminal to the neutral user-accessible load contact. The set of four-pole interrupting contacts is configured to provide electrical continuity between the first pair of hot contacts, the second pair of hot contacts, the first pair of neutral contacts, and the second pair of neutral contacts, in a coupled state. The set of four-pole interrupting contacts is driven by the armature movement in the first direction to thereby interrupt electrical continuity between the first pair of hot contacts, the second pair of hot contacts, and the first pair of neutral contacts, and the second pair of neutral contacts in a tripped state. A reset mechanism is coupled to the four-pole interrupting contact assembly. The reset mechanism includes a reset button and a reset actuator that selectively provides a reset stimulus in response to an actuation of the reset button. The first pair of hot contacts, the second pair of hot contacts, the first pair of neutral contacts, and the second pair of neutral contacts are necessarily driven into the coupled state by the reset stimulus.

'718 Patent at 3:55-4:12; see also *id.* at 4:30-53, 5:13-37, 5:57-65, 6:21-50, 12:29-47. That portion of the specification implies, and there is nothing in the patent to specify otherwise, that the contact assembly specified includes four pairs of contacts.³³ To accept P&S's proposed construction, which does not specify the number of contacts included within the assembly, would be to both ignore the term "four-pole" within the claim and additionally to overlook the exceedingly clear language of the specification, revealing the inventors' intent that the contact assembly in question include four pairs of contacts. Under these circumstances, I recommend a finding that the disputed language be interpreted to mean "a contact assembly, comprised of four pairs of electrical contacts, that can complete and interrupt the circuit between the line terminals, load terminals and user load terminals."

b) "cantilever"

The parties next disagree over the construction of the term

³³ Since the '718 patent was issued by the PTO as a first-action allowance, the prosecution history does not bear upon or limit any statements included in the patent itself. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki, Co., Ltd.*, 234 F.3d 558, 626 (Fed. Cir. 2000) (Rader, J. dissenting) ("First-action allowances, with no real interchange or substantive commentary between the applicant and the examiner regarding any of the originally drafted claim limitations provide no notice of the scope and meaning of those limitations beyond the words themselves as used in written description and claims."), overruled on other grounds, 535 U.S. 722, 122 S.Ct. 1831 (2002).

“cantilever”, as utilized in the ’718 patent. This issue was vigorously contested and addressed during the course of the ITC proceedings. In his decision, ALJ Charneski, construed the term as meaning “an elongated flexible member having a fixed end and a moveable end.” Nocilly Aff. (Dkt. No. 41-2) Exh. W at p. 155. On review, however, the Commission examined whether the ALJ’s construction improperly imported the attributes “flexibility” and “moveability” into the claim.³⁴ *Id.*, Exh. X at pp. 22-23. After reviewing the matter the Commission concluded that because there is virtually no distinction between a moveable end and a free end, a construction proposed by one of P&S’s competitors, it would adopt the “free end” construction. *Id.* Turning to the issue of flexibility, and noting that virtually every material has some degree of flexibility, the ITC rejected the importation of that concept into the construction of the term “cantilever”.

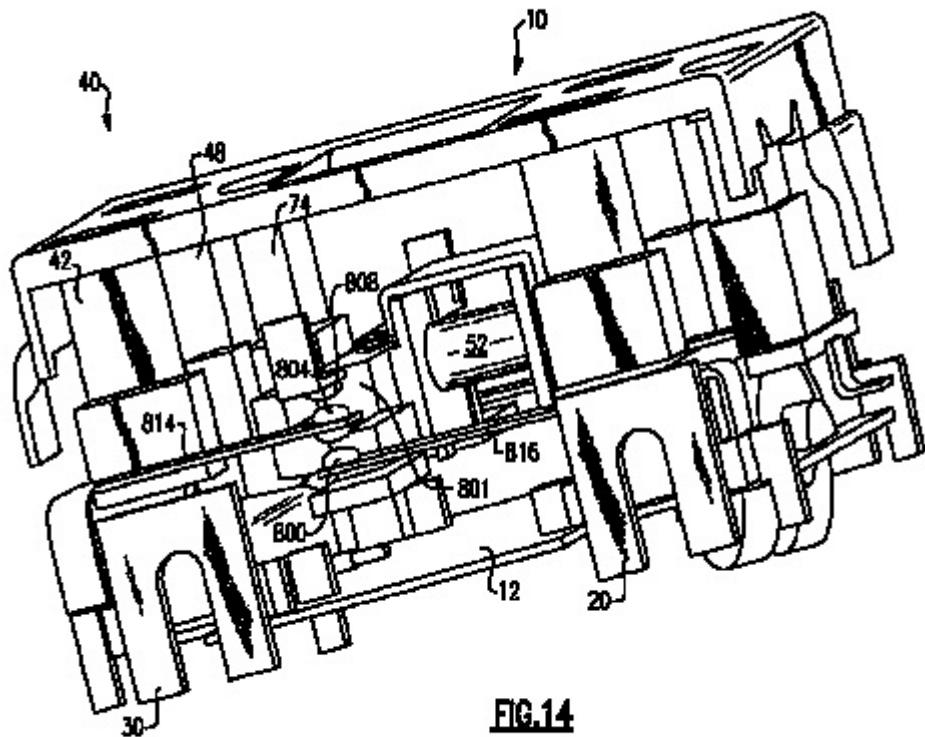
To a large extent the concepts of movability and flexibility, in the context of a cantilever, are interrelated. The dictionary definition of the

³⁴ In its brief P&S mistakenly asserts that ITC did not disturb ALJ Charneski’s construction. See P&S Opening Claim Construction Brief (Dkt. No. 44) at p. 97. To the contrary, the ITC rejected that construction in favor of one proposed by a P&S competitor, although noting that the modification did not affect the ALJ’s ultimate conclusion regarding infringement of claim 52. Nocilly Decl. (Dkt. No. 41-2) Exh. X at p. 23.

term cantilever would in substance typically specify an elongated member with a fixed end and a non-fixed, or free end.³⁵ This appears to be consistent with the definition generally accepted among those of ordinary skill in the art. See, e.g., Nocilly Decl. (Dkt. No. 41-2) Exh. Z-9 at pp. 2872-2873. If such an item was composed of a truly non-flexible material, then in theory its free end would not be moveable. In reality, however, all materials, including metals, retain some degree of flexibility, however slight it might be. See Nocilly Decl. (Dkt. No. 41-2) Exh. Z-5 at p. 1545-1546; Exh. Z-9 at p. 3258.

In this instance the invention described in claim 52 depends upon flexibility of the cantilevered member in order to perform its desired function, moving under certain prescribed conditions in order to make or break electrical contact. The need for flexibility and, correspondingly, moveability is well illustrated in Figure 14.

³⁵ A “cantilever” is defined as “a projecting beam or member supported at only one end . . .” MERRIAM-WEBSTER’S COLLEGIATE DICTIONARY 169 (10th ed 1999); see also THE AMERICAN DICTIONARY 274 (4th ed 2000) (“[a] projecting structure, such as a beam, that is supported at one end and carries a load at the other end or along its length.”).



That figure discloses cantilevers **814** , **816**, which are elongated flexible members with a fixed end and moveable end. A person of ordinary skill in the art would understand from the portion of the specification providing "flexible member **814**, which is connected to load terminal **30**. Line neutral contact **800** is connected to flexible member **816**", '718 Patent 14:58-62, that the cantilevers of claim **52** must be flexible members.

That the cantilevers specified must be both flexible and moveable is further confirmed elsewhere in the '718 patent specification. See, e.g.,

'718 Patent 7:61-8:12 ([c]antilever member 22 includes a moveable contact **24** . . ."); 8:14-17 (" . . . latch mechanism **80** pulls the cantilevers **22, 26, 220** and **260** such that moveable contacts **24, 28, 240**, and **280** are separated from stationary contacts. . ."); 9:64-66 ("[c]antilevers **22, 26, 220**, and **260** are spring-loaded and biased in an upward direction to close the contacts. . ."); '718 Patent 14:58-62 ("flexible member"); 7:61-8:12 ("[c]antilever member **22** includes a moveable contact"); 8:14-17; ("cantilevers" with "moveable contacts"); 9:64-65 ("spring-loaded and biased"). As the specification notes, "[w]iper arm **82** overcomes the spring loaded bias of the cantilevered arm and drives the cantilevers downward to there by open the contacts. . .". '718 Patent 10:23-26.

From these specification excerpts it is clear that a person of ordinary skill in the art would understand the elements of moveability and flexibility, already inherent in light of the reality that no material is truly inflexible, to be included within the claim term "cantilever" as utilized in claim 52. I therefore recommend that the term be construed to mean "an elongated flexible member having a fixed end and a moveable end."³⁶

³⁶ While the parties originally briefed the question of proper construction of the term "fixed" in claim 52 of the '718 patent, they have since withdrawn their request for construction of that term. See Dkt. No. 52 at p. 11.

- c) “aligned and configured to provide electrical continuity”

In his determination the ALJ Charneski concluded that this term should be construed to mean “arranged in a mating relationship to provide electrical continuity.” Nocilly Aff. (Dkt. No. 41-2) Exh. W at p. 156. That portion of ALJ’s Charneski’s decision was not reviewed by the ITC. P&S now proposes that same construction in the context of this proceeding. Hubbell, while not necessarily disputing the proposed construction, asserts that the claim is clear and requires no further refinement.

It is true that the term, as written in claim 52, appears to be well defined. Nonetheless, as utilized in the '718 patent, including in the specification, the term appears to imply the existence of the mating relationship proposed by P&S. Accordingly, and there being no vociferous disagreement on the part of Hubbell, I recommend a construction of this term to mean “arranged in a mating relationship to provide electrical continuity.”

7. The '799 Patent

The next patent in issue is the '799 patent, issued on February 6, 2007 and entitled “Protection Device with a Sandwiched Cantilever Breaker Mechanism.” Like its sibling, the '718 patent, the object of the

'799 patent invention is to deny power to the user-accessible plug receptacles in a GFCI device when it is tripped, including during a miswire condition. See '799 Patent 3:47-5:28. Added in the '799 patent is new matter which includes the use of a dual contact structure on the hot and neutral load cantilevers. See '799 Patent Abstract, 3:53-5:11.

At issue in this action is independent claim 1, as well as dependent claims 2 through 5, of the patent. Claim 1 of '799 patent provides as follows:

1. An electrical wiring device including a plurality of line terminals, a plurality of load terminals, and at least one set of receptacle load terminals, the wiring device comprising:

at least one fixed contact;

at least one first cantilever member including a first contact disposed thereon;

at least one second cantilever member disposed between the at least one fixed contact and the at least one first cantilever, the at least one second cantilever member including a dual contact disposed thereon, the dual contact being disposed between the at least one fixed contact and the at least one first contact; and

an actuator configured to move between a closed position and a tripped position, the actuator being configured to urge the at least one first cantilever toward the at least one second cantilever to close the fixed contact, the first contact, and the dual contact such that the plurality of line terminals, the plurality of load terminals, and the at least one set of receptacle load terminals are electrically continuous in the closed position, the actuator being configured to release the at

least one first cantilever from the at least one second cantilever to open the fixed contact, the first contact, and the dual contact, the plurality of line terminals, the plurality of load terminals, and the at least one set of receptacle load terminals are decoupled in the tripped position.

'799 Patent, 21:60-22:18. The parties request construction of the terms "dual contact" and "actuator" as contained within that claim.³⁷

a) "dual contact"

The parties do not disagree that the term "dual" carries with it the implication that two of the objects specified are involved. They disagree, however, over whether the two are required to be separated, or divided. Pointing to Figure 14 of the '799 patent, which discloses contacts **804** which are separated by the cantilever **814**, Hubbell requests a construction which contains an element of separateness. P&S, on the other hand, requests that the term be construed to include a contact structure having double contacts.

Without question the two contacts **804** reflected on figure 14 are separate, one affixed to either side of the cantilever **814**. The portion of the patent specification describing that embodiment, however, does not

³⁷ While the issue was briefed, the parties have since withdrawn their request for construction of the term "fixed contact" as utilized in claims 1 through 3 of the '799 patent. See Dkt. No. 52 at p. 11.

require separateness, instead describing the contacts as “double-sided”. See e.g. '799 Patent 14:9-11. Not wishing to import any requirement into a claim based upon a single embodiment, I recommend construction of the term “dual contact” to mean “one contact structure having two distinct electrical contacts.”

b) “actuator”

This disputed term presents an issue which departs from the normal claim construction exercise. Addressing this term, P&S argues that it is well known to those of ordinary skill in the art, and that the clarification provided in the claim 1 of the '799 patent regarding the configuring of the actuator as specified provides ample enlightenment. While not requesting construction of the term, Hubbell responds that inclusion of the term in claim 1 gives rise to a fatal indefiniteness of the claim.

The term “actuator” does appear to be well known to those of ordinary skill in the art, referring to a structure that drives a component or components into motion. See Nocilly Decl. (Dkt. No. 41-2) Exh. Z-3 at pp. 903-904; see also *Sunrace Roots Enter. Co., Ltd. v. Sram Corp.*, 336 F.3d 1298, 1302 (Fed. Cir. 2003) (“[t]he ordinary meaning of ‘shift actuator to one of the ordinary skill in the art is ‘a mechanism that controls changing

the gears'"). Since the term is well understood, I propose that it not be further construed, and instead that the court defer addressing the matter more fully until consideration is given to Hubbell's indefiniteness argument, either on a future dispositive motion or at trial.

8. The '158 Patent

The next patent in issue is the '158 patent, issued on March 29, 2005 and entitled "Circuit Protection Device With Half Cycle Self Test". To address the reality that despite encouragement by manufacturers few users of GFCI devices actually test them on a regular basis, the '158 patent specifies circuitry for performing self-testing functions on the internal electrical components of the device during a period when the switching device cannot conduct current, and thus cannot trip the device. '158 Patent at 2:6-9. The self-testing is accomplished by introducing a current through the sensing transformer of the GFCI detector during a half-cycle of AC power when the switching device cannot conduct, providing a simulated ground fault and generating a response similar to that which would occur in the event of an actual ground fault. *Id.* at 2:6-9; 3:3-7, 22-26. If the GFCI device does not respond properly the device can trip to open the contacts, and interrupt current flow, or instead illuminate a

lamp to visibly indicate the existence of a failure. *Id.* at 3:7-9, 4:14-27.

In this action, P&S asserts infringement of claim 1, an independent claim, as well as dependent claims 8, 9, 22, and 23 of the '158 patent.

Claim 1 of the '158 patent provides as follows:

1. A self-testing protection device including a plurality of line terminals configured to be connected to an alternating current (AC) electrical distribution system, and a plurality of load terminals configured to be connected to at least one load, the device comprising:

a ground fault simulation circuit for producing a simulated ground fault during a first predetermined half-cycle of AC power;

a detector coupled to the ground fault simulation circuit, the detector configured to detect the simulated ground fault during the first predetermined half-cycle of AC power, and transmit a detection signal in response thereto; and

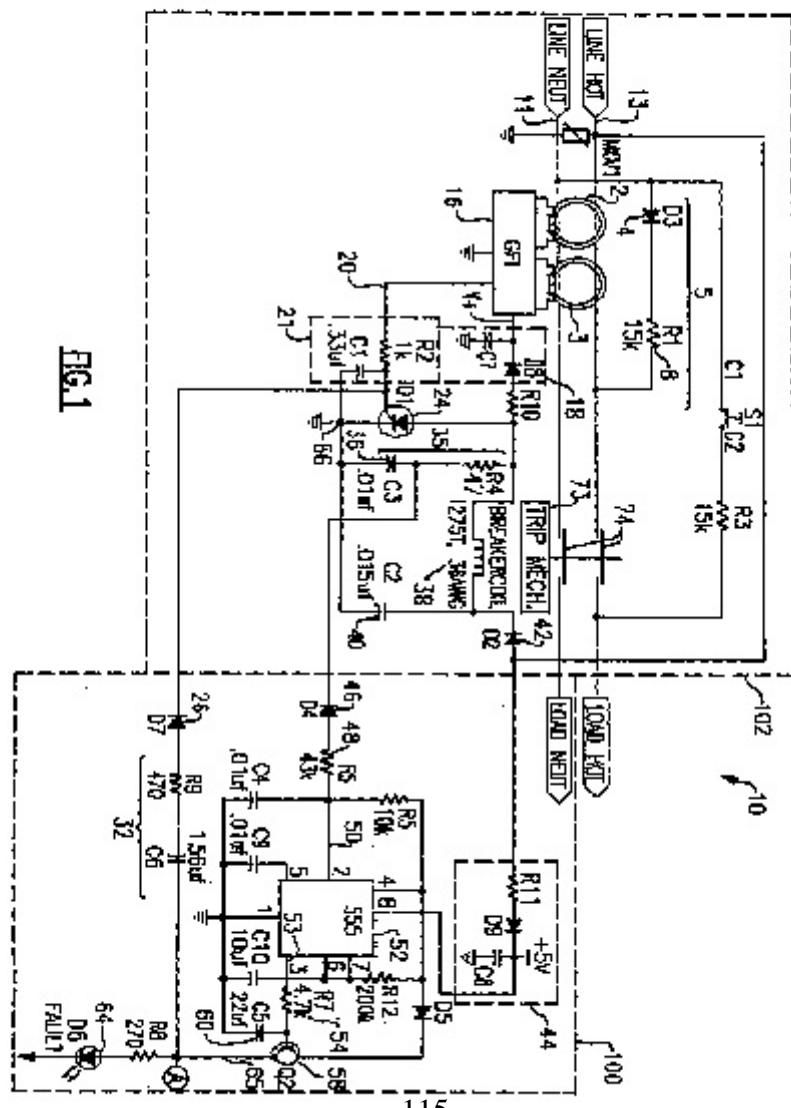
an alarm circuit coupled to the detector, the alarm circuit being configured to generate an alarm signal if the detection signal is not generated within a predetermined period of time.

'158 Patent at 5:23-39.

a) "ground fault simulation circuit"

The '158 patent specification describes a simulated ground fault condition that can be accomplished by use of a bypass circuit **5** that provides a differential in the current flow during the negative half cycle of the AC power cycle between the neutral and hot lines, simulating a ground

fault. '158 Patent 3:19-27. Figure 1 of the '158 patent depicts a bypass circuit **5** that results in current from the hot line passing through the sensing transformer, but diverts current from the neutral line, effectively bypassing the transformer and producing the simulated fault condition.



Under these circumstances Hubbell's proposed construction of the term more closely conforms to the claim and patent specification. Accordingly, I recommend that the term "ground fault simulation circuit" be construed to mean "a circuit that provides an alternate current path from between the hot and neutral line to create a simulated ground fault."

b) "simulated ground fault"

Although both parties have proposed slightly different definitions for this term, it does not appear to be particularly controversial. P&S urges a construction that would describe a condition in which a signal is sent through a sense transformer to generate a response as if there were an actual ground fault. Hubbell advocates in favor of a more restrictive interpretation, to include "an intentional creation of the difference in the magnitude of electrical current flowing in the respective hot and neutral lines of the GFCI device."

For the reasons previously set forth with respect to construction of "ground fault simulation circuit", the construction offered by Hubbell, with slight alteration, appears to be more in keeping with the plain language of the patent claim and patent specification. Accordingly, I recommend that the term "simulated ground fault" be construed to mean "an intentional

creation of a difference in the magnitude of electrical current flowing in the respective hot and neutral wires passing through the sense transformer of the GFCI device.”

c) “predetermined half-cycle”

The concept of AC power half-cycles is not controversial. It was well known by those of ordinary skill in the art at the time of the '158 invention that half-cycle refers to one-half of a sinusoidal AC power cycle, and could consist of either the positive or negative half-cycle. Conventional AC power is typically delivered at a frequency of 60Hz, meaning that the sinusoidal wave repeats sixty times per second, with a full cycle therefore occurring every 0.017 seconds and a half cycle, whether positive or negative, lasting approximately 0.008 seconds, or eight milliseconds.

The parties appear to be in agreement that the term “predetermined half-cycle” implies that testing will occur during either the positive or the negative cycle of a conventional AC power supply, depending upon the direction and placement of the diode **4**. P&S interprets Hubbell's position as requiring predetermination of which particular positive or negative half-cycle, out of the millions which follow after the GFCI device is powered up, will be selected for the testing. Having reviewed the parties' submissions

carefully, I do not construe this to be Hubbell's position. Instead, it appears that Hubbell is essentially in agreement with P&S that which half-cycle will be used is going to be predetermined, and will be defined among other things by the direction of the diode **4**.

At oral argument Hubbell asserted that the claim construction should include the manner in which the particular half-cycle is determined. Neither claim 1 nor the patent specification, however, sheds light on this issue and the court would therefore be left to its own devices and would be unduly encroaching upon the prerogative of the patentee and the PTO by specifying that methodology. *Linear Tech Corp.*, 566 F.3d at 1057-58. Accordingly, I recommend a construction of the term "predetermined half-cycle" to mean simply "one of the two half-cycles of conventional AC power, as set in advance of device installation, meaning either the positive or the negative half-cycle for testing, but not both."

d) "predetermined period of time"

Claim 1 of the '158 patent specifies "an alarm circuit coupled to the detector, the alarm circuit being configured to generate an alarm signal if the detection signal is not generated within a predetermined period of time." '158 Patent 5:36-39. The parties seek guidance as to the meaning

of the phrase “predetermined period of time”.

The concept of predetermination has been previously addressed, and generally assumes something that is established in advance. That the customary interpretation of predetermination was intended by the drafters of the '158 patent is supported by its specification, which reveals the use of a timer to determine whether the GFCI detector senses a simulated ground fault within a set period of time, resulting in the subsequent lighting of a lamp indicating a failure if the detector does not respond before the preset time expires. '158 Patent 3:66; 4:2; 4:14-17.

The parties do not appear to be in significant disagreement over this principle. P&S, however, proposes an interpretation of this disputed term which is confusing, urging as a construction “a circuit connected directly or indirectly to the detector that: i) measures a set time period; and ii) generates an alarm if the detection signal is not sent by the detector within that set time period.” I therefore recommend a finding that Hubbell’s proposed construction of the term, to mean “a fixed period of time established prior to the operation of the device by timing circuitry within the device”, be adopted.

e) “a bypass circuit for selectively conducting current”

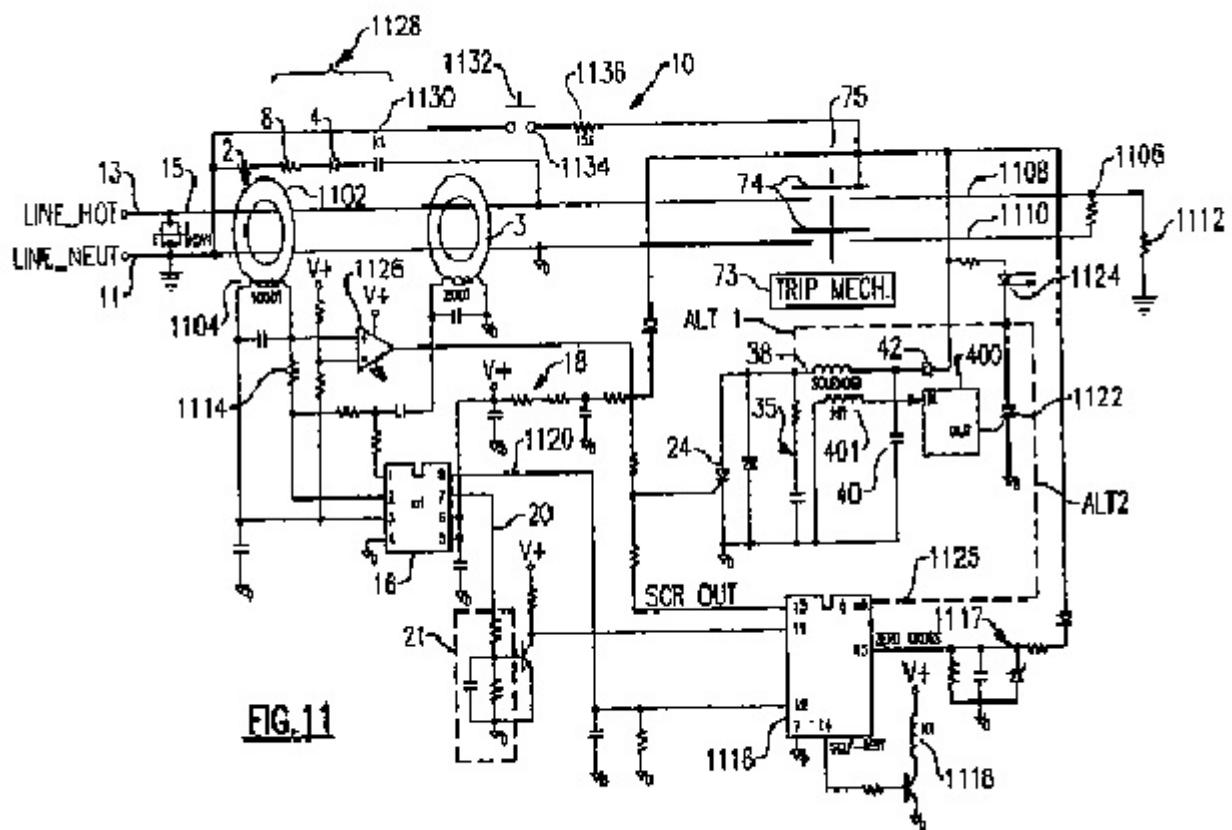
Claim 8 of the '158 patent, *inter alia*, specifies the device revealed in claim 1 "wherein the ground fault simulation circuit includes a bypass circuit for selectively conducting current during the first predetermined half-cycle of the AC power." '158 Patent 5:64-67. The troublesome word within this claim language is "selectively", leading to disagreement over its impact upon the intended meaning of the claim term as a whole. As Hubbell notes, the '158 patent specification does not expressly address the meaning of the term "selectively", as included in claim 8. The intended meaning of that term, however, is readily apparent when considered in the context of the entire phrase. The plain meaning of the term refers to the fact that the bypass circuit specified is designed only to conduct current during the first predetermined half-cycle of the AC power, to the exclusion of the other half-cycle.

As P&S convincingly argues, the court cannot merely focus upon the term "selectively" in isolation. When context is considered it is clear that the selectivity reference relates to the phrase "during the first predetermined half-cycle of the AC power". When viewed in this light, the construction now urged by P&S is both plausible and consistent with the technology associated with the patent. I therefore recommend a finding

that the term should be construed as meaning “a circuit that will only conduct current during the particular half-cycle of AC power selected for producing the simulated ground fault.”

9. The '005 Patent

The remaining patent implicated in the claim construction exercise is the '005 patent, issued on December 27, 2005 and entitled “Circuit Protection Device with Timed Negative Half-Cycle Self Test.” A continuation in part of the '158 patent, the '005 patent is similarly directed toward a GFCI device capable of performing certain self-testing functions on the internal components of the detection circuit. The '005 patent extends the protections afforded by the '158 patent, disclosing a number of different embodiments for self-testing devices and including testing functions related to grounded neutral faults. One particular example, depicted in Figure 11 shown below, reveals a self-testing circuit that includes a second integrated circuit, referred to as a controller or control gate **1116**, controlling when the simulated fault signal is sent, and receiving the output of the detection chip **16** to determine whether the device has properly recognized the simulated fault condition.



Describing Figure 11, the specification explains that

[c]ontrol gate **1116** gates these signals and provides a gated and delayed and detection signal to SCR **24** (SCR out). Control gate **1116** is configured to recycle between a test state and a non-test state. The durations of each of the two states are established by a timing circuit. Those of ordinary skill in the art will recognize that the timing circuit may be of any suitable type. For example, the timing circuit may be an external clocking arrangement driven by a local oscillator (not shown), a timer disposed in controller **1116**, or by a zero cross circuit **1117** coupled to the AC power. As will be described in great detail below, when control gate **1116** is in the test state, it is configured to actuate self-test relay **1118** during a negative half-cycle. Upon actuation, self-test relay **1118** is configured to actuate the self-test circuit to initiate the self-test procedure.

'005 Patent 10:57-11: 2. As can be seen, the controller is designed to determine which half-cycle is occurring and controls the sending of the simulated ground fault during one of the selected half-cycles, but not the other. The controller also receives a signal sent from the detection chip if the simulated ground fault is detected. The specification clarifies that the controller may be a microprocessor, an application specific integrated circuit ("ASIC"), or a combination of other similar known electronic devices.

'005 Patent 11:58-66.

Principally at issue in connection with the '005 patent is claim 1, which provides as follows:

1. An electrical wiring protection device for use in coupling AC power through an AC power distribution system to at least one electrical load, the device comprising:

an automated self-test circuit coupled to the AC power distribution system and configured to generate at least one simulated fault signal during a first predetermined half-cycle polarity of AC power;

a detector circuit coupled to the automated self-test circuit, the detector circuit generating a detection signal in response to the at least one simulated fault signal; and

an interval timing circuit coupled to the automated self-test circuit, the interval timing circuit being configured to enable the automated self-test circuit to generate the at least one simulated fault signal during a first predetermined interval and not enable the automated self-test circuit during a subsequent second predetermined interval and the second predetermined interval being recurring time intervals.

'005 Patent 18:55-19:6. Also implicated in the action are claims 17 and 22, both of which are dependent on claim 1.

a) "an interval timing circuit"

The first dispute regarding the '005 patent centers upon the meaning of the term "an interval timing circuit" as utilized in claim 1. After reciting that term, claim 1 goes on to describe it as "coupled to the automated self-test circuit" and as "being configured to enable the automated self-test circuit to generate the at least one simulated fault signal during the first predetermined interval and not enable the automated self-test circuit during a subsequent second predetermined interval, the first predetermined interval and the second predetermined interval being recurring time intervals." '005 Patent 18:67-19:6. Since I have already recommended a construction of certain terms associated with generating one or more intervals, it does not appear that the term, which is not particularly controversial, requires amplification. The plain language of the term suggests a configuration that would allow the automated self-test circuit to generate one or more simulated ground fault signals during one of the two AC half-cycles, as set in advance, while preventing the sending of the simulated ground fault signal during the other half-cycle not

selected. Since I conclude that the definition now offered by P&S is supported by both the plain language of the claim and patent specification, I recommend that the term “an interval timing circuit” be construed to mean “a circuit that 1) is connected, directly or indirectly, to the automated self-test circuit; and 2) is configured to allow the automated self-test circuit to generate one or more simulated ground fault (as that term has previously been construed) signals during one of the two half-cycles, as set in advance, and to prevent the sending of the simulated ground fault signal during the other half-cycle.”

b) “coupled”

In addition to providing for an interval timing circuit, claim 1 requires that it be “coupled to” the automated self-test circuit. Once again, Hubbell urges a construction of this term that would require a direct connection. Consistent with prior discussions concerning the term, and noting that terms in related patents should, wherever possible, be construed consistently, *Budde*, 250 F.3d at 1379-80, I recommend a construction of the term “coupled to” to mean “in direct or indirect connection”.³⁸ *Silicon Graphics, Inc.*, 58 F. Supp.2d at 346.

³⁸

See pp. 52-58, *ante*

c) “bypass detection signal”

Claim 17 of the '005 patent specifies “a bypass circuit coupled to the detector circuit, the bypass circuit generating a bypass detection signal in response to sensing a fault current in the AC power distribution system exceeding a predetermined threshold.” '005 Patent 20:11-14.

Once again, the parties’ respective briefs reflected mild disagreement over the term “bypass detection signal”. At oral argument, however, Hubbell gave ground, agreeing to a construction that would include “a signal that bypasses both the detector and interval timing circuits to trip the device.” I therefore recommend this construction of the term under consideration.

d) “a self-test relay circuit”

Claim 22 of the '005 patent specifies that the self-test relay circuit is configured to actuate the automated self-test circuit in response to a signal from the interval timer. In its reply brief Hubbell appears to have taken the position that there is no significant difference between the two respective proposed constructions for this term. See Hubbell Reply Claim Construction Brief (Dkt. No. 49) at p. 35. At oral argument, however, it retreated somewhat from this position. Focusing on portions of the

specification which described the types of relays that could be utilized in order to implement this claim, Hubbell now contends that the language must be intended to refer to an electrical switch.

The '005 specification provides that

[a]s those of ordinary skill in the pertinent art will recognize, self-test relay **1118** may be of any suitable type depending on electrical device characteristics. For example, relay **1118** may be implemented using an electro-mechanical relay. Relay **1118** may also be implemented using a solid state switches [sic] such as a thyristor, SCR, triac, transistor, MOSFET, or other semiconductor devices.

'005 Patent 12:4-10. Neither that section nor any other portion of the specification require that the circuit specified contain an electrical switch. Accordingly, I recommend adoption of the P&S proposed definition of the term to mean "a relay coupled between the interval timer and automatic self-test circuit that is configured to activate the automated self-test circuit in response to a signal from the interval timer."

IV. SUMMARY AND RECOMMENDATION

The ten patents in suit involve relatively simple mechanical and electronic devices described in terms, many of which are readily understood without the need for technical or expert assistance or further refinement. In certain instances, however, the claims make reference to

terms, the meanings of which are not readily apparent, in which case further clarification is required. Based upon the foregoing and upon careful consideration of the available evidence, it is hereby respectfully

RECOMMENDED that the court affix the following meanings to the claim terms of the ten patents in suit:

<u>Patent</u>	<u>Disputed Term</u>	<u>Proposed Construction</u>
'398	Preamble language	Limits and restricts the device disclosed in claim 1 as being for use as a "ground fault circuit interrupter (or "GFCI")
'398	"at least one pair of electrical terminals fixedly supported in spaced relation within said enclosed space"	"at least one pair of line and load terminals that are spaced and secured within the housing"
'398	"unitary, electrically conducting member carrying a pair of spaced electrical contacts"	"a member comprising a unit, carrying two spaced contacts and providing an electrical current-carrying path between two spaced contacts"
'398	"housing means"	"defining an enclosed space"
'398	"mounting means"	<p>function: "permitting movement between a first position, wherein a pair of contacts are in respective, circuit-making engagement with a pair of terminals, and a second position, wherein both of the pair of contacts are in spaced, circuit-breaking relation to the pair of terminals"</p> <p>structure: "a mounting mechanism such as a block, including a central body and an arm for supporting the</p>

Patent	Disputed Term	Proposed Construction
		conducting member, and structural equivalents thereof”
'398	“biasing means urging said conducting member toward movement to said second position”	function: “urging the conducting member toward the movement to the second position” structure: “a resilient member such as a coil spring, leaf spring, and structural equivalents thereof”
'398	“latching means releasably retaining said conducting member in said first position”	function: “releasably retaining the conducting member in first position” structure: “a latch member and a pin passing through a hole in a block having a shoulder that cooperates with a hole in the latch member, which latch member also includes a spring biasing pin to retain the conducting member in the first position, and structural equivalents”
'398	“actuating means for releasing said latching means to permit said biasing means to move said conducting member to the second position in response to a pre-determined fault condition to said electrical circuit”	function: “releasing the latching means to permit the biasing means to move the conducting member to the second position in response to a predetermined fault condition in the electrical circuit” structure: “the corresponding structure associated with that function includes a “solenoid, an armature, toroidal cores and associated windings, and an SCR, and structural equivalents thereof”
'340	“a circuit segment coupled between the line terminals”	“the portion of a circuit electrically connected, either directly or indirectly, between the hot and neutral line terminals”
'340	“configured to generate a predetermined signal in response to detecting a proper wiring condition, the predetermined signal not simulating a fault condition, a proper	“configured to generate a signal set in advance of device installation, which signal does not simulate a fault condition, when the device detects a proper wiring condition, meaning that the line terminals are connected to a source of AC power”

Patent	Disputed Term	Proposed Construction
	wiring condition being effected when the line terminals are connected to a source of AC power”	
'340	“four sets of interrupting contacts”	“four pairs of electrical contacts that can separate from each other to interrupt the flow of electricity”
'340	“wiring state detection circuit”	“a circuit that detects the presence of a proper wiring condition, wherein AC power is connected to the line terminals”
'340	“configured to permanently open a circuit a predetermined time after AC power is couple to the line terminals”	“configured to open the circuit an amount of time after AC power is connected to the line terminals, which amount of time is set in advance of device installation, in a manner in such that it is not closed again in the normal intended use of the device”
'340 '386	“configured to generate a fault detection signal in response to detecting at least one fault condition”	“a circuit configured to generate a particular signal upon detecting at least one type of fault, such as a ground fault”
'386	“a wiring state detection circuit coupled to the first conductive path, the wiring state detection circuit selectively providing a wiring state detection signal when the at least one line terminal is coupled to a source of AC power”	“a circuit, which is connected directly or indirectly to the first conductive path, that specifically detects wiring of AC power to the line terminals and selectively provides a signal specifically indicating proper wiring of the AC power to the line terminals when this proper wiring state is present”
'386	“provide an actuator signal in response to the fault detection	“to respond to the signal indicating detection of a fault or the signal indicating detection of a proper wiring state by, in response to either one

Patent	Disputed Term	Proposed Construction
	signal or the wiring state detection signal”	of those signals, providing a signal to initiate action on the part of one or more components of the device such as, for example, a solenoid armature”
'564	“a fault detection circuit”	“a circuit that will provide a signal upon detection of a fault”
'564	“the switching device being characterized by at least one device parameter”	“a device that 1) acts as a switch, and 2) has at least one defining characteristic, by way of example, impedance”
'564	“generate a user-perceivable output signal based on the at least one device parameter and provide end-of life signal on the basis of the at least one parameter”	“to generate an indication to the user based on the parameter, such as impedance, for example, of the switching device”
'564	“to monitor the at least one device parameter and provide an end-of-life signal on the basis of the at least one device parameter”	“to monitor the one device parameter of the switching device and provide a visual or audible signal if the switching device is determined to have reached its end-of-life”
'973	“a GFCI circuit . . . coupled to the plurality of line terminals and the plurality of load terminals, the GFCI circuit being configured to detect at least one ground fault condition”	“a circuit that is connected, directly or indirectly, to the line and load terminals and that can detect a ground fault”
'973	“a second detection	“a circuit different from the GFCI circuit and that

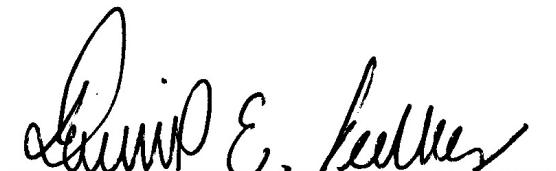
Patent	Disputed Term	Proposed Construction
	circuit coupled to the GFCI circuit”	is connected, directly or indirectly, to the GFCI circuit”
'973	“a switch element . . . to thereby disarm the second detection circuit”	“a switch that may be opened to disable the second detection circuit”
'973	“a user-accessible housing feature disposed on the GFCI device housing, the user-accessible housing feature being in communication with the switch element”	“a physical object accessible to the user, located on but physically distinct from the GFCI housing, where the physical object physically touches or is otherwise in communication with the switch element that allows an outside force to close the switch when testing is complete”
'938	“an accessible housing feature disposed on the GFCI device housing an external stimulus being applied via the accessible housing feature to thereby throw the switch element into a second position to thereby enable the second detection circuit”	“a physical object, accessible to a user, located on but physically distinct from the GFCI housing, wherein the physical object physically touches or is otherwise in communication with the switch element”
'718	“four-pole interrupting contact assembly”	“a contact assembly, comprised of four pairs of electrical contacts, that can complete and interrupt the circuit between the line terminals, load terminals and user load terminals”
'718	“cantilever”	“an elongated flexible member having a fixed end and a moveable end”
'718	“aligned and configured to provide electrical continuity”	“arranged in a mating relationship to provide electrical continuity”

Patent	Disputed Term	Proposed Construction
'799	"dual contact"	"one contact structure having two distinct electrical contacts"
'799	"actuator"	"a well understood term that should not be further construed at this juncture"
'158	"ground fault simulation circuit"	"a circuit that provides an alternate current path from between the hot and neutral line to create a simulated ground fault"
'158	"simulated ground fault"	"an intentional creation of a difference in the magnitude of electrical current flowing in the respective hot and neutral wires passing through the sense transformer of the GFCI device"
'158	"predetermined half-cycle"	"one of the two half-cycles of conventional AC power, as set in advance of device installation, meaning either the positive or the negative half-cycle for testing, but not both"
'158	"predetermined period of time"	"a fixed period of time established prior to the operation of the device by timing circuitry within the device"
'158	"a bypass circuit for selectively conducting current"	"a circuit that will only conduct current during the particular half-cycle of AC power selected for producing the simulated ground fault"
'005	"an interval timing circuit"	"a circuit that 1) is connected, directly or indirectly, to the automated self-test circuit; and 2) is configured to allow the automated self-test circuit to generate one or more simulated ground fault (as that term has previously been construed) signals during one of the two half-cycles, as set in advance, and to prevent the sending of the simulated ground fault signal during the other half-cycle"
'005	"coupled to"	"in direct or indirect connection"
'005	"bypass detection signal"	"a signal that bypasses both the detector and interval timing circuits to trip the device"
'005	"self-test relay circuit"	"a relay coupled between the interval timer and automatic self-test circuit that is configured to

Patent	Disputed Term	Proposed Construction
		activate the automated self-test circuit in response to a signal from the interval timer"

NOTICE: Pursuant to 28 U.S.C. § 636(b)(1), the parties may lodge written objections to the foregoing report. Such objections shall be filed with the Clerk of the Court within FOURTEEN (14) days. FAILURE TO SO OBJECT TO THIS REPORT WILL PRECLUDE APPELLATE REVIEW. 28 U.S.C. § 636(b)(1); Fed. R. Civ. P. 6(a) and (d) and 72; *Roldan v. Racette*, 984 F.2d 85 (2d Cir. 1993).

IT IS FURTHER ORDERED, that the Clerk of the Court serve a copy of this report and recommendation upon the parties in accordance with the local rules of this court.



David E. Peebles
U.S. Magistrate Judge

Dated: December 30, 2009
Syracuse, NY